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ORIGINAL ARTICLES :

Australia : Archæology.

McCarthy

Culture Succession in South Eastern Australia.¹ By *Frederick D. McCarthy, Dip.Anthr. (Syd.), Curator of Anthropology, Australian Museum.*

In a paper (Tindale, 1957) recently issued, it is postulated that the four periods—Tartangan, Pirrian, Mudukian and Murundian—identified from the excavation of the Tartanga and Devon Downs sites on the lower Murray River (Hale and Tindale, 1930) are characteristic of the greater part of Australia, and that the latter two take priority over the Bondaian and Eloueran terms adopted by McCarthy (1948) as a result of the Lapstone Creek excavation in eastern New South Wales. The method followed by Tindale in this paper to establish his major thesis is to correlate sites in south-eastern Australia and elsewhere on the continent with the lower Murray type sites in order to extend the distribution of the four lower Murray cultures. Many of the sites correlated in this manner contain implements, to some of which specific names are given, that are not represented in the lower Murray type sites. He explains some of these anomalies on the basis of the latter sites being impoverished ones in an area lacking adequate supplies of material for making implements.

The present paper is a critical discussion of Tindale's claims from the archæological point of view. The view is herein taken that some of the claims, including his major thesis, are premature and untenable, particularly at the present exploratory stage of our knowledge of the prehistory of Australia. The study of this subject is not yet advanced sufficiently, and much more precise data is needed, to enable us to define continent-wide culture periods, particularly when it is taken into consideration that only four excavations of prehistoric deposits have been made in south-eastern Australia.²

The importance of the Tartanga and Devon Downs excavations is recognized by all interested in Australian archæology as a landmark in the study of the subject. The results, although of far-reaching importance, must be kept in their proper perspective, and not be permitted to form the basis of what can become grave misconceptions in our prehistory.

Many of the conclusions reached by Tindale in this paper depend upon inter-related data concerning stone implements, geological deposits, rock engravings, physical types and carbon 14 datings. It is, therefore, a paper which involves a number of disciplines, and the ideas put forward will form hypotheses for discussion and analysis by geologists and physical

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² About a dozen sites were excavated in Arnhem Land by Setzler and McCarthy (1950). The manuscript describing these excavations was completed in 1954 and is awaiting publication in Vol. II of the Records of the American-Australian Arnhem Land Expedition of 1948.

anthropologists in the future. I have outlined the development of the study of archæology in Australia (1949) in a paper which points out clearly that our understanding of Australian cultures is uncertain due to the need to carry out more widespread distributional surveys of implement types and assemblages, and of occupational deposits. I feel that Tindale's paper has complicated our consideration of the subject as a whole but at the same time it has thrown into sharp relief many of the questions that have yet to be elucidated. For these reasons, the paper cannot be let go unchallenged, and I have tried, in this review, to present an unbiased and impersonal criticism of the archæological problems involved. For convenience, the paper follows the same arrangement as Tindale's.

GAMBIERAN

Tindale (1957, pp. 4, 44) stated that "For many years various biface trimmed implements and cores have been turning up in various places in Australia. McCarthy (1938) grouped them together under the term Gambieran . . . and presumed them to represent a discrete culture. Tindale (1949) reported the occurrence of a *coup-de-poing*-like example, near Scaddan, Western Australia, and described the use of crude examples like it on Mornington Island, in the living culture isolated there, as oyster-picks." Now in my Singapore paper (1940, not 1938, pp. 30-33) I described the flint bifaces from south-eastern South Australia as the Portland-Mt. Gambier industry, making it quite clear that their cultural position was uncertain. They were not grouped with other bifaces in Australia, and I remarked that although certain similar typological forms occurred in Australia and the Patjitanian industry of Java they were "forms which occur in early and late flake industries (in Australia), and are not index forms such as the *coup-de-poing*, (and) one can do no more than state that the resemblance exists." Tindale (1941, pp. 145-46) first used the term Gambieren for this industry, placing it tentatively earlier than all other known South Australian cultures. I followed (1949) his use of the term for convenience of reference, pointing out that its separation depended entirely upon typology. Its position in our lithic industries can only be defined by adequate work in the future. The Scaddan biface is in another category. It could represent a similar industry to the Portland-Mt. Gambier assemblage, but as there is only one specimen such an extension of the distribution of the latter would be hard to establish. There is some doubt as to whether the Scaddan specimen is an Australian implement. It resembles more closely the flint *coup-de-poing* from Europe, examples of which, brought here by various people or in ships' ballast, have found their way into strange places in Australia. We must also bear in mind the finds of Melanesian and Polynesian adzes in Australia, specimens in the main brought by crew members of ships trading in the Pacific. The oyster-picks of Mornington Island were first described by Roth (1904, p. 23, figs. 144-49) who recorded the name *riambi* for them, which must take priority over Tindale's *marivaa*. This name was adopted by McCarthy, Bramell and Noone in their classification of Australian stone implements (1946, pp. 59-60, fig. 309), who also established their typology. Setzler and McCarthy (1950, p. 4) recorded these picks in the Milingimbian industry which they excavated in the Crocodile Islands in Arnhem Land. None of these references is quoted by Tindale, nor has he referred to the picks by their taxonomic name of *riambi*. It is obvious, however, that they differ considerably in typology from the flint bifaces of South Australia. The *riambi* is a specialized pyramidal implement on which the three or four faces that form the sides taper from the butt to the point. Some are made from edge-ground axes. The flint bifaces are lenticular in

section and fashioned by knapping the edge all round the implement from both the upper and lower surfaces. The *riambi* cannot, therefore, be grouped with the flint bifaces as an example of Gambieran hand-axe distribution. Only one in Roth's series of seven specimens, and one in the Milingimbi series of ten, could possibly have been used for shaping the shafts of digging-sticks in the manner demonstrated to Tindale by natives using sundry pieces of beach waste (Tindale, 1949, pp. 157-63, figs. 1-2). There are ridged edges on several specimens but these edges show no signs of wood working use. The series as a whole suggests that the principal use was for percussive purposes, as oyster picks, and it is on the newly made specimens only that any semblance of a cutting edge is evident. On the old or well used specimens most of the edges are rounded and smooth.

KARTAN

The relationship of the Hoabinhien I uniface pebble implement culture of south-east Asia to the Kartan of Australia was recognized independently by both Tindale (1937) from his examination of specimens in Holland, and myself (1940) from an examination of specimens in Java and Singapore, as a link between Australia, Indonesia and south-east Asia. Tindale now brings forward (1957, pp. 6-7) evidence, some of which I consider doubtful, to extend the distribution of the Kartan more widely than hitherto in Australia. His statements that "a single large flake found on a sandhill between Roebourne and Cossack in Western Australia"; a Bathurst Island pebble implement "which is not quite typical"; and "a typical sumatralith from Bootra in R. L. Black's collection", are, to my mind, insufficient evidence for the existence of a Kartan culture in these localities. I have collected assiduously in far western New South Wales (upon the typology of which a paper is in preparation) and can assert confidently that to date there is no evidence of a Kartan culture in this region. An odd pebble flaked on one side cannot be used as decisive evidence to support the claim by Tindale. Pebbles are used as sources of material all over Australia, and odd variants must be considered carefully as distributional data. Where the Kartan types occur in south-eastern Australia and south-eastern Queensland (Darling Downs) they do so in large numbers as a developed industry. A series of specimens is necessary to prove the point. Their distribution extends from the coast to the tablelands of New South Wales, but insufficient collecting has been done in the central strip of this State to establish the line of demarcation between the eastern and inland industries.

Again, the *horsehoof* core is a basic type found in practically all known Australian industries in varying numerical proportion—in the Kartan, in the Devon Downs series of industries found on surface sites in western New South Wales and elsewhere, and occasionally on the Eloueran and Bondaian surface sites of eastern New South Wales. Tindale (1957, p. 9) has added it to the Tartangan culture from a small surface site 6 miles south of Mt. Harriet in South Australia, but none were excavated at the type site. I consider it advisable to use the *horsehoof* as an index implement only when it is associated with a definite Kartan industry, not as an isolated implement which could belong to a variety of industries, because I believe that assemblages take prior place to individual implements in distributional problems of this kind.

TARTANGAN

In his survey of the fossil freshwater mussels of Australia McMichael (1957, p. 242) rejected *Unio protovittatus* (Hale and Tindale, 1930, pp. 156, 204, fig. 9; Tindale, 1957, p. 9)

as a fossil or extinct type and determined it as the living form of *Velesunio ambiguus*. Apparently McMichael's paper did not appear in time for reference to be made to it by Tindale. The fact remains that the Tartangan mussels are no longer to be regarded as an extinct or sub-fossil type.

By bringing sites such as Hood's Drift, Martin's Cape and others into the Tartangan culture concept, Tindale (1957, pp. 9-10) reports that "the known distribution of the Tartangan is constantly being extended". He has thus extended the Tartangan into a large blade industry of which typical index forms may be distinguished in many other parts of Australia. He now recognizes, for example, a Tartangan knife called *jimari* (1957, pp. 12-16) in the Pilbara district of north-western Australia, although the type site at Tartanga did not yield any large blades of this kind. Additions like this one to an industry bring about a considerable change in their composition and thus in their lithic relationships elsewhere in Australia and very careful consideration will have to be given to this problem in the future. Sound comparisons can, I feel, be made only with the assemblage of implements at the type site.

The typology of the Tartangan, as I pointed out (1949, pp. 301-10) does not differ materially, in general terms, from that of the Pirrian, Mudukian and Murundian implements found at Devon Downs. I examined these implements, but as Tindale does not refer to my summary of them it is repeated here: "The only specialized knapped implement yielded by the Tartanga beds was the *Burren* adze-slug from deposits B, C and E. On the surfaces of deposit G and H two worn and discarded *Tula* adze-slugs and a *Pirri* point, displaying the typical grey patination of the implements from the actual layers, were found—should these *Tula* and *Pirri* have weathered out of the deposit, it is possible that some of the Tartanga layers are contemporaneous with the Pre-Pirrian or Pirrian cultures in the Devon Downs cave, instead of being earlier than the latter. Nuclei from Tartanga layers C and E exhibit alternate platform knapping and some of the flake implements are of microlithic size. One nucleus from layer C is a flat-based prismatic type with two opposite platforms."

"The Devon Downs cave yielded four cultures embracing a fairly wide number of specialized knapped implements. None of the latter was found in the pre-Pirrian layers xi to xii, the true nature of which is as yet unknown. The Pirrian layers viii to x produced the *Burren* adze-slug from viii and *Pirri* and microlithic-sized scrapers throughout the culture. The true *Tula* adze-slug is unrepresented in the Pirrian culture. Both *Burren* and *Tula* adze-slugs were present in the Mudukian layers v to vii, together with discoidal and semi-discoidal microlithic segments. In the Murundian layers, the *Burren* adze-slug was found in layers ii and iv, an *Elouera*-like adze-flake and two bipolar blades in layer iv. The later Murundian bore no specialized flake implements and the authors considered it to be the existing culture of the local aborigines at the time of white settlement."

It will be seen that the *Burren* adze-slug occurs in all of the periods defined in these sites, and should it be found by further excavations at the type (or in nearby similar sites on the lower Murray) that some of the other specialized implements, particularly the *tula* slug, the *pirri* and geometrical microliths, occur in layers other than those in which they were found by Hale and Tindale, then many of the differences will be removed. Unfortunately, no nuclei were found in the Devon Downs deposits, and comparisons cannot be made with those excavated at Tartanga.

The claim (Tindale, 1957, p. 5) that the unspecialized *karta* pieces represent in South Australia and elsewhere a survival in use of the south-west Australian *kodja* hammer-axe blades has been discussed fully and rejected as untenable by Davidson and McCarthy (1957, pp. 413-15). They pointed out that there are two types of cutting implement mounted in the known series of *kodja*, neither of which can be identified with the *karta*, and furthermore, that the name *karta* is used by Tindale for an unspecialized series of implements made from both core and knapped pieces. The typological evidence advanced by Tindale to support his *kodja* claim for the *karta* and hammerstones in South Australia is unsound and cannot be used to extend the distribution of the *kodja* all over Australia as part of the Tartangan culture. When it is considered that the *elouera* (Setzler and McCarthy, 1950) was mounted in the same manner at Oenpelli as the *kodja* implements, it will be seen that the problem of the original distribution of the *kodja* is a complicated one. The method of mounting in gum was apparently employed for a variety of implements, and is a widespread feature of Australian lithology. The important thing to realize is this variety of implements mounted in a similar manner, and the only proof of a wider distribution of the *kodja* lies in the finding of hafted examples and in identifying specialized implements associated with it (like the Oenpelli hafted *elouera*) not assumptions about unspecialized implements like the *karta* upon which a claim is based by Tindale that the Tartangan occurred in south-western Australia and that the *kodja* was used in South Australia.

It is an extremely important matter for archæologists in Australia to establish the precise typology of an industry or culture before making comparisons and defining relationships. *We have an established nomenclature* (McCarthy, Bramell and Noone, 1946) *to which additions should be made with the greatest care and discretion, otherwise the systematics of our implements will become as confused as they were prior to 1946.* I am of the opinion (1946, pp. 2-4; 1949 pp. 307-14) that our industries and cultures are to be distinguished by their specialized implements, and more important still, by the assemblages or associations of these index tools. We cannot link up sites scattered all over the continent on the basis of generalities or carbon 14 datings. Our study of Australian prehistory is in an early stage of development. We require systematic studies of surface assemblages from most of the continent—eastern New South Wales and south-eastern South Australia are the only areas well understood in this respect—to build up our knowledge of typology and distribution, and we require sample excavations from various parts of Australia to provide the archæological background of time and associations to our surface industries. We need, further, first-hand accounts of the making and use of implements from all localities in which it is possible to record such information. We are certainly not in a position to base the major and permanent divisions of our prehistoric period upon two excavations in one locality, the lower Murray River.

The carbon 14 datings of the various sites investigated by Tindale are of the greatest value to our understanding of Australian archæology. An important point to be settled by future research is whether Tartanga represents the beginning of a culture period that survived for many thousands of years (from 8700 years ago onwards) with few alterations until the end of the occupation of the Devon Downs cave, or whether fewer definite culture periods (than the four now defined) developed during this long occupation of the area by the Aborigines.

Another important problem to be solved is whether sufficient evidence as yet exists to identify the Tartangan industry with the Newer Tasmanian industry as claimed by Tindale

(1957, p. 11). No really satisfactory analysis of Tasmanian typology has yet been published, and until this is done the specialized implements and their characteristics remain more or less unknown. This knowledge is essential for comparative purposes, as I pointed out in discussing Australo-Tasmanian relationships (1949, pp. 314-18).

The identification by Tindale (1957, pp. 12-15) of the *jimari* knife with the Tartangan blade of Hood's Drift, the Ngalea tribe's knife (of Cockatoo Creek, also used by the Pintubi of the Western Desert, Karadjeri and other north-western tribes) and with the *tronatta* of Tasmania, is a claim that needs the closest possible typological study of series of specimens of each of these knives, and of their associations in industries, and cannot be based upon single specimens found here and there. None of these knives or blades was excavated at the type site. The Hood's Drift *jimari* (Tindale, 1957, p. 15, fig. 3) is a type well represented in the Portland-Mt. Gambier flint industry and on far western New South Wales surface sites. Typologically, to judge by the illustrations, I would not regard the semi-discoidal Mangala and Pintubi knives as being identical with the long-bladed archaeological *jimari* of Hood's Drift, but the range of variation in each kind might be such that the identification is correct. Upon this point no information is given, but upon the grouping of these various blades under the heading of *jimari* knives depends a claim for relationship between industries and types of implements in a region extending from Tasmania to north-western Australia, and even further, as Tindale stated (1957, p. 11): "Early Tartangan was a large blade culture which possibly spread to Australia from Asia but it is not clearly recognized there; isolated blades have been found in New Guinea which show resemblances but not much is known about them." Deductions of far-reaching importance such as this require much more critical typological and archaeological data to support them than has been quoted.

PIRRIAN

The significance of this culture raises an involved problem of the movement of people and diffusion. Tindale (1957, pp. 17-23) implies that the Pirrian culture was carried by a movement of people to Devon Downs and elsewhere, whereas I am of the opinion that the *pirri* uniface point diffused from tribe to tribe in most of Western Australia, Northern Territory, Arnhem Land,³ Central Australia, South Australia, western Queensland, western New South Wales west of the Paroo-Darling Rivers' line, and to the lower Murray River. It did not diffuse into eastern Australia, but Tindale (1957, p. 17) said that "the Pirrian culture has now been found from almost all parts of Australia excepting only Cape York Peninsula, coastal Queensland, and parts of eastern New South Wales; *in these three places insufficient collecting has been done to regard their entire absence as established beyond doubt*". The only record for the *pirri* in Queensland is that of Roth (1904, p. 20, fig. 86) who described one as an acicular scraper from the far western part of this State. None has been recorded in Victoria.

My analysis (1943) of many thousands of knapped implements in the Australian Museum, amassed by a number of collectors over a period of forty years from surface sites on the south-coast of New South Wales, failed to reveal a *pirri* industry. These sites, and northward to the mid-north coast, have been worked over so intensively that insufficient collecting cannot be given as the reason for the non-occurrence of the *pirri* on them. Jackson (1939) does not

³ It was found at Yirrkalla in north-eastern Arnhem Land and at Oenpelli in western Arnhem Land, Setzler and McCarthy, 1950, p. 4.

mention *pirri* at Point Cartwright in southern Queensland. The small percentage of variant point types, such as the unilateral trimmed *Adelaide* point among the *pirri* in the inland industries, and the bi-marginal variety among the *Bondi* points in the eastern industries, should be borne in mind. They must, however, be considered always in their context and point associations and at the present stage of our knowledge could not be accepted as representing, respectively, the *bondi* point in the inland industries and the *pirri* in the eastern industries. For this reason we must reject the statement (Tindale, 1957, p. 21) that "two rather aberrant examples of *pirri*-like implements have come from Victoria (Lake Lonsdale and Altona), and a rather short, squat example from Port Kembla". No site is known to me at present on which *pirri* and *bondi* point industries are both represented, but such an assemblage may be found in mid-western New South Wales along the line of demarcation between the inland and eastern industries. A proper appreciation of the importance of systematic typology must again be stressed here, particularly in regard to the suggestion (Tindale, 1957, pp. 22-23) that the Keilor flake could be a *pirri*. This is an unworked, symmetrical-pointed flake which Tindale is prepared to accept as evidence that Keilor man possibly belonged to the Pirrian period. Flakes of this kind occur all over Australia, in all kinds of industries, and they cannot all be classified as Pirrian. No hypothesis can be sustained on such false reasoning.

The existence of *pirri*-headed spears in the Pilbara area of north-western Australia supports the opinion that the *pirri* diffused from the Kimberleys over the vast region of the continent in which it has been recorded. Information collected by Davidson (Davidson and McCarthy, 1957) about the spread of hafted axes and adzes, and the biface Kimberley point, in Western Australia, illustrates quite clearly that diffusion was still an active process up to and subsequent to the coming of the white man. Tindale (1957, p. 20) puts forward the two hypotheses that the *pirri*-headed spears indicate either that "some of the peoples of this area are actual modern descendants of the peoples of the Pirrian culture or are a local survival of one element of a Pirrian tradition". It has first to be proved that a wave of people carried the *pirri* before it can be assumed that the present natives are their descendants. It is more probable that the Pilbara area is a marginal one in which the *pirri* survived as a spearhead because the biface Kimberley point, which replaced it elsewhere in the north-west, had not penetrated there even by trade.

Tindale (1957, p. 22) interprets the term *pirri* in "its originally purposed sense as including both the developed *pirri* with secondary trimming and the so-called butted blade, which, however they may be separated by the implement classifier, still represent together with the *pirri* the whole range of form of a single type of spearhead. . . They range from forms with margins entirely free of secondary working, to the most perfect bilaterally trimmed examples." Butted blades is not explained as a term. Reference to the original descriptions of the *pirri* (Horne and Aiston, 1924, pp. 101-08; Hale and Tindale, 1930, pp. 194-95) indicates that a butted blade is a plain point retouched on the striking platform, but this could also mean a flake with a faceted butt and these occur in all Australian industries. The typological characteristics of the *pirri* have been given by McCarthy, Bramell and Noone (1946, pp. 37-38, fig. 175).

Now if we regard untrimmed pointed blades as *pirri* then we must admit that the latter occur all over Australia, but as pointed out above we cannot allow so much latitude in typology.

I have constantly asserted in my analyses of stone implement industries in Australia (1943, 1947, 1948) that we have to recognize that their development centres around characteristic type of flake. In the Bondaian and Eloueran industries orange-segment blades were striven for and made into *elouera*, the same technique being employed to knap the small asymmetricals for *bondi* points in the Bondaian period. The balance of the flakes were used as scrapers, knives, burins and other purposes. In western New South Wales (and the inland industries generally) I support Towle's opinion (1935) that symmetrical semi-discoidal flakes and tongue-shaped blades used for making *tula* adzes were the ideal forms, those pieces which did not flake off in these forms being discarded as wastage or used for minor purposes. The small pointed blades were made into *pirri* where they were in use. In the Northern Territory (McCarthy, 1957) blades (of the *leilira* type but of varying sizes) were fashioned into scrapers, knives and points but as an assemblage or industry they are much different to those on the lower Murray. These variations in basic flake form are important characteristics of an industry and illustrate how difficult it is to prove the existence of any industry by the occurrence of a single flake. Thus the odd *elouera*-like blade in the Mudukian at Devon Downs is no proof of relationship with the Eloueran industry because occasional examples of this type are found on western New South Wales surface sites bearing inland cultures of a completely different facies to the eastern industries (McCarthy, 1949, p. 310) but they do not constitute an index form in these industries. Tindale is apparently unwilling to accept a systematic approach (an integral part of biological work), that of the "implement classifier", to the study of Australian stone implements. Such an approach limits the distributions of his lower Murray industries, and again, nullifies his major thesis of their occurrence all over Australia. To my mind, the systematics must be established before comparisons can be made.

It is stated (Tindale, 1957, p. 17) that there is evidence to show that the pressure-flaked biface blade culture of north-western Australia is likely to be a direct development of the Pirrian. The probable typological relationship between the uniface *pirri* and the biface Kimberley point was suggested some years ago (McCarthy, 1940, pp. 40, 47) although the reference is not cited by Tindale. It was not thought of in terms of a relationship between a uniface point culture and a biface point culture, or between waves of people carrying them. It is true that the Pirrian layers at Devon Downs are some 4000 years old, but no archaeological work has been done in the Kimberleys to ascertain the antiquity of the *pirri* in that area. The uniface and biface points were either introduced or developed at long distant intervals in the north-west, or the biface developed from the uniface in the Kimberleys. Excavations in the future may indicate whether either or both points were originally associated with some of the other important culture traits of this region. The possibility that the uniface technique diffused northwards from the lower Murray is remote.

MUDUKIAN

The empirical method followed by Tindale in extending the distribution of the lower Murray industries all over Australia is well demonstrated by his treatment (1957, pp. 27-28) of the Mudukian period. Thus *bondi* points become part of this industry, based upon their occurrence with geometrical microliths in South and Western Australian sites. It is important to remember, however, that no *bondi* points were found in the Devon Downs Mudukian layers. On the other hand, no geometrical microliths, so important in the Mudukian, occurred in the Lapstone Creek—Bondaian deposit containing a rich series of these points. *Bondi*.

points occur quite commonly in rock shelter floors in eastern New South Wales both with, though rarely, and without, geometrical microliths (McCarthy, 1948, pp. 309-10). The two completely different assemblages of implements in the Mudukian and Bondaian industries, however, make it quite clear that they belong to cultures of different facies as indeed are the inland and eastern cultures. Thus the occurrence of a microlithic segment—and some students do not accept it as a geometrical type—in the Mudukian is insufficient evidence for Tindale to base his claim upon that the term Bondaian should be abandoned in favour of Mudukian. Both will have to stand as local industry names even if they are related in time, and this has not yet been demonstrated.

The microlithic could be an intrusion into both industries and not the basic element of them. Sundry microliths of all kinds occur all over Australia, but the geometrical types occur in western New South Wales with the *pirri* and *Adelaide* points, and in south-eastern Australia with the *bondi* point. We cannot at present decide which type of point belongs with them, or whether the symmetrical and asymmetrical types belong quite independently to their respective industries. The data to hand indicate that the geometrical microliths and *bondi* point belong to the one culture and that the *pirri* is an intrusive trait. The possibility exists, of course, that the *Adelaide*-point is an aberrant *bondi* point in the inland industries. Precise distributional maps for Australia of the geometrical microliths, and the various point types, and more extended excavation work, will enable us to decide whether the geometrical microliths and a point type spread differentially to various parts of the continent, as seems probable, or whether they came from different sources. Furthermore, such data would probably indicate whether they spread from the north down through the west and east, and not into the central region, or from the north throughout the whole continent. The complementary problem of why the geometrical microliths occur with different types of points, and not always with the *bondi* type, also needs explanation.

Tindale (1957, pp. 26-27, and 1955, p. 292) reported *bondi* points in the interior of Western Australia, and used the evidence to "throw doubt on an idea put forward by McCarthy (1938) that these implements were confined to coastal areas and that they were in some manner connected with marine food-getting. The presence of such along the coast line of New South Wales has been thought by him to warrant the separation of the undoubtedly well developed Mudukian industry of that area, under a different name, as the Bondaian culture. Bondaian would appear to be synonymous with the Mudukian culture". My statement in 1938 (1940, p. 40) was that "the asymmetrical (*bondi*) point in Australia probably originated in the microlithic industry and developed into a longer point in such areas as the coast of New South Wales". There is no inference here that it was connected with marine food getting.

I have held the opinion (1949, p. 315) that the eastern Australian industries—Kartan, Bondaian, Eloueran—form a group unrepresented in the interior. These eastern industries are found as far west as the tableland or plains regions of New South Wales and Queensland, where they meet the inland cultures of the Tartanga-Devon Downs type. They mingle with the latter on the lower Murray, but they do not, as Tindale suggests, originate from the latter. The distribution of these eastern industries extends in an arc to western Arnhem Land. This hypothesis still holds true for the Kartan and Eloueran. Tindale's new data (1957, pp. 5-9) on the Kartan limits its distribution to north-western Australia, eastern Australia, Flinders Range, and southern South Australia all peripheral areas. Accumulating

evidence of the distribution of the geometrical microliths and *bondi* points has not yet defined the provenance of the former implements and therefore of the industry. The Eloueran industry is not represented in South Australia. The composition of the Bondaian and Eloueran indicates a closer relationship with the Oenpelliian and Milingimbian industries (Setzler and McCarthy, 1950, p. 4) than with the lower Murray series.

The possibility that the *bondi* point was a stone awl used for piercing skins (Tindale, 1957, p. 27) merely adds another usage to those—surgical knives, spike for picking animal out of molluscs, spear barb and point—already suggested for this point and to which it could be put. I regard it as a dual spear barb and point (1943, p. 149) which was subsequently replaced by the bone *muduk* in eastern Australia and by wooden detachable barbs elsewhere. The principal use of other stone points in Australia—*pirri*, Kimberley biface, *leilira* blade—as spear points is the strongest possible argument in favour of its acceptance. The *bondi* point is the index implement of the Bondaian industry but it disappeared entirely in the succeeding Eloueran period, yet the making of skin-cloaks was carried on until after the coming of the white man. The cloaks were eagerly sought after by the early settlers and their convict workmen, and the Aborigines showed the whites how to make them. Bradley (1786, pp. 167–68) said the skins were pierced with a sharp pointed bone in the Sydney district, the area of settlement prior to the crossing of the Blue Mountains in 1813, one in which the *bondi* point is abundant on coastal campsites and which includes the Lapstone Creek cave. Mann (1885, p. 35) said they were pierced with a sharp-pointed bone as in Victoria (Smyth, 1878, p. 271), Port Lincoln in South Australia (Meyer, 1879, p. 210), and Bunbury in south-western Australia (Roth, 1903, p. 63). Thus the statement by Basedow (1925, p. 365) that “in former days the River Murray and south-eastern tribes used pointed splinters of stone for making holes through the skins of animals they made up into rugs” is at variance with most of the statements of other early writers who record the bone awl as the most commonly used implement for the purpose. The Lapstone Creek cave excavation has shown that the *bondi* point is a prehistoric implement and therefore could not be the splinter of stone referred to by Basedow. Thus Tindale’s assumption (1957, p. 27) that the occurrence of the *bondi* point in any locality in Australia indicates Mudukian Culture, and evidence of the former wearing of skin cloaks, is not in accord with the above evidence.

The claim (Tindale, 1957, p. 23) that the Mudukian horizon at Devon Downs “yielded examples of most of the microliths now known to be typical in Australia” is not supported by my examination of the specimens from the type site, nor by the Mudukian implements illustrated. I noted single examples of discoidal and semi-discoidal types (1949, p. 309). Such a claim can only be based upon inference from data gathered at other sites which Tindale regards as Mudukian. The Devon Downs specimens are borderline geometrical types which some Australian archaeologists would classify in the extensive series of sundry microliths common to most Australian industries, while the geometrical trapezes, triangles and crescents form the decisive cultural indexes. It will certainly be necessary to obtain some of the latter forms from the Mudukian deposits at the type or similar lower Murray sites, and to prove that they belong exclusively to the Mudukian horizon, before claiming that all sites in Australian which contain geometrical microliths belong to this period. Thus, as I stated previously (1949, p. 310) further excavation work is necessary on the lower Murray sites before a final separation of the industries into cultures can be decided and applied to the continent or portions of the continent.

The function of the *muduk* bone point was shown (McCarthy, 1940) to be a dual spear point and bar, and the series of spears armed in this manner from the east-coast of Australia in our museums demonstrate this point convincingly. The additional use of the *muduk* as a fishing toggle appears to be confirmed, but Tindale's persistent omission to quote the east coast data implies that he regards the *muduk* as a toggle only. *Muduk* were found in the Oenpelli cave excavations (Setzler and McCarthy, 1950, p. 4) with *elouera*, *pirri* and Kimberley biface points, bipolar fabricators, and *leilira* blades, an assemblage in a far northern locality that supports the idea of inland and eastern industries impinging upon one another in certain cultural marginal areas of the continent. Perhaps the eastern and inland industries stemmed from such a mixed assemblage.

In this attempt to link all other known Australian industries with the lower Murray series, Tindale (1957, p. 28) stated that the *elouera* first appears in the Pirrian period. An *elouera*-like piece occurred in Murundian iv at Devon Downs, occasional specimens occur on surface sites in far western New South Wales on which the lower Murray industries prevail, but not as a dominant specialized type. I observed no *elouera* in the Pirrian material that I examined (1949, pp. 309-10) from the type site. There is no true *elouera* blade industry in our inland industries, and odd variant examples from surface sites and one from an excavation, are not sufficient evidence to displace the name Eloueran by Murundian (Tindale, 1957, p. 31) particularly when the Eloueran industry belongs to an eastern complex and the Murundian to an inland culture region and the assemblages of implements as a whole are so markedly different.

The *juan* knife described from German museums (Tindale, p. 28, fig. 8) is an important addition to our archaeological nomenclature. But there is a problem of origin and relationship to various industries involved in this knife that has yet to be explained. A knife of this type was figured from Lake Eyre (McCarthy, Bramell and Noone, 1946, fig. 36, collected by G. Aiston but not referred to by Tindale) as a variant of the *leilira* blade, and the Australian Museum has just received another one, collected by Mr. O. M. Le Knight, from Ingella, western Queensland. Both are long backed blades of orange-segment shape, pointed at the distal end and bearing a plain striking platform on the butt end. The German museum specimens from coastal Queensland have a skin grip, and those from the interior a gum grip, but neither of our two inland specimens bears any indications of a gum grip. The two knives figured by Tindale are 9 and 12 cm. long. In the Hunter river area, on the north coast of New South Wales, whitish-grey chert blades of this kind, from 7 to 10 cm. long, occur on many surface sites. Most of the latter blades in the Australian Museum collection have a chipped and use-polished working edge on the chord. The free flaking chert of this area offered no difficulties to the knapping of these exceptionally long *elouera*-type blades. My analysis of knapped implements from the southern New South Wales coastal sites (1943) demonstrated a maximum length of just over 5 cm. for *elouera* blades, none of the *juan* type being recorded from this area from which extensive collections are available for study. The type has not been recorded from elsewhere in south-eastern Australia. The question is raised as to whether or not we are dealing with a knife developed in both the inland and eastern (Queensland) industries independently, as the case may well be, or whether the knife as a type diffused from the north to the areas in which it was used as a variant of the *leilira* blade. The data certainly do not appear to justify linking the *juan* knife exclusively with the Mudukian period. None

was found in the Devon Downs type deposits, and again more precise distributional, typological and archæological information is required before the real cultural provenance of this implement can be decided.

MURUNDIAN

Tindale (1957, p. 31) said that "McCarthy (1948) described an important excavation of a rock shelter at Lapstone Creek in Eastern New South Wales which shows the junction between an earlier Mudukian industry (for which he uses the term Bondaian) and the later Murundian Culture, with an industry directly comparable with that in the type shelter at Devon Downs as amplified by later studies in South Australia. It is unfortunate that he has seen fit to propose a term "Eloueran" for this upper industry, which seems merely to add another synonym to the terminology of the subject and to mask identity with the Murundian of other places . . . The Murundian of northern South Australia is characterized by well trimmed adze blades made at factory sites and traded over large areas."

The above statement makes it necessary to reiterate here that we are not yet in a position to regard any of the named "cultures" as basic ones for the whole of Australia, and further, that the Bondaian and Eloueran industries at Lapstone Creek should not be grouped with the Mudukian and Murundian of the lower Murray River. At the present state of our knowledge it is advisable to regard these "cultures" as local and regional industries until sufficient archæological work has been done to determine the basic continental cultures. If we regard the *pirri* as an intrusive diffused trait, and recognize the full implications and importance of the occurrence of the *tula* adze flake with its two slugs from the Tartangan to the Murundian periods at Devon Downs, it is apparent that a re-classification of the whole of the lower Murray sequence may become necessary when further excavations have been done in this significant area.⁴ Instead of the four "culture" periods defined by Hale and Tindale (1930) and claimed (Tindale, 1957) to be the basic divisions for the whole of Australia, it will probably become necessary to denote the deposits simply as Tartanga i-vi and Devon Downs i-xii, and perhaps fewer named periods will emerge in the final analysis.

Not a single edge-ground axe was recovered from the Devon Downs Murundian deposits in the type site. That this axe belongs to the Murundian rests upon the assumption (Hale and Tindale, 1930, p. 206) that the later phase of the Murundian was the living culture of the natives at the time of white occupation. Axes are rare in the lower Murray area, which is on the fringe of their known distribution in eastern South Australia, and the aboriginal occupation of the Devon Downs cave could well have ceased before this implement spread to the lower Murray area. Yet in eastern New South Wales we are dealing with a true axe culture. Axes were found throughout the Eloueran deposit at Lapstone Creek (which is adjacent to an axe "factory") associated with *elouera*, bipolar fabricators, *Bulga* edge-ground knives, and a variety of scrapers, a distinctly different assemblage to the *tula* adze and its slugs in the Murundian at the type site. In addition, in the Milingimbian industry of the Crocodile Islands (Setzler and MacCarthy, 1950, p. 4) edge-ground axes (and polished flakes knapped from their blades as some of these axes were made into *riambi* oyster-picks) were associated with yet another different assemblage of oyster-pick and percussion stones but not with a

⁴ Fresh light on the cultural sequence of the lower Murray and its microlithic industry will be forthcoming with the completion of an excavation at Fromm's Landing by the University of Melbourne, in which implement types not found at Devon Downs have been unearthed.

specialized flake industry. At Oenpelli edge-ground axes were rare and were found only on the surface of the rock shelter deposits containing *elouera*, bipolar fabricators, uniface *pirri* and biface Kimberley points, and bone *muduk* points. In the edge-ground axe we are thus dealing with a diffused trait established for a long period in eastern and northern Australia but which never reached most of South and Western Australia. Comparison, therefore, of the assemblages and specialized types of knapped and coroid implements in an industry becomes of great importance in Australian archæology. The varied assemblages with the axe is associated indicates that the names of industries in force in Australia today can only be regarded as local in their implications until the basic archæological periods are clearly defined in the future.

A further problem to be settled is the relative importance of the process of diffusion of stone implement traits, as against the migration or movement of waves or groups of natives. To discuss culture movements in terms of Tartangans, Pirrians, Mudukians and Murundians, as people (Tindale, 1957, pp. 29-30, 40), while bearing in mind that there are also Barrineans, Murrayians and Carpentarians, is as yet premature because the former group of periods, as cultures, will probably not all survive in the nomenclature of Australian prehistory in the distant future. The physical types are tentatively assigned (Tindale, 1957, pp. 40-44) as Tasmanoid for the Kartan and Tartangan, and Murrayian for the Devon Downs industries. It is obvious that continent-wide archæological work will have to be done before this cultural and physical relationship can be established. There is, in addition, the integral problem of whether such traits as the *pirri* and geometrical microliths reached Devon Downs by diffusion, as I am inclined to think, or by waves of Pirrian and Mudukian people. In this respect Tindale (1957, pp. 43-44) said that "the present-day Carpentarian Aborigines of Northern Australia may have been the original possessors of the Murundian Culture. In any case they seem to be responsible for the diffusion of the latest elements which it contains". The Northern Aborigines are mainly the middle men, not the originators, of culture advances in Australia, a point that has been shown conclusively in many papers by Davidson and others (McCarthy, 1953). Cape York and Arnhem Land are corridors through which Melanesian and Indonesian traits have penetrated into Australia and thence spread in varying degrees among the tribes on the continent. There is no evidence to suggest that the Murundians or Carpentarians invented all of the advanced culture traits of northern Australia. A recent paper (Davidson and McCarthy, 1957) discusses the diffusion of Kimberley biface points, *tula* adze and methods of hafting, and the edge-ground axe in Western Australia, in which data are quoted to show that these implements were diffusing westward and south-westward until and even after the coming of the white man.

The above discussion as a whole reveals the many important basic principles involved in our consideration of the archæology of Australia today. They include relationships of known industries, nomenclature and typology, the need for recognition by all workers of a standard classification, the problems of differential diffusion and movements of people. It has emphasized the urgent need for intensive archæological studies to be made of many implement types and their distributions, of prehistoric deposits and surface assemblages. It demonstrates, also, that the present inadequate state of our knowledge of Australian prehistory necessitates a reasonably cautious approach to the elucidation of these problems.

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F. D. MCCARTHY.

Australia : Social Anthropology.**Meggitt.**

Two Australian Aboriginal Games and a problem of Diffusion. *By Mervyn J. Meggitt, M.A., Department of Anthropology, University of Sydney.*

In 1953-54, while engaged in fieldwork among Walbiri Aborigines at Hooker Creek, in the western desert of the Northern Territory of Australia,¹ I observed that younger men occasionally played two sedentary games which require diagrams drawn in the sand. Only one, however, is a true "boardgame" in that counters are used with defined powers of movement.² Both games are competitive, but each apparently exercises rather different sorts of mental processes. One game, called "creek", demands considerable concentration and the memorizing of visual patterns while the player is subjected to the stress of vociferous kibitzing by onlookers. The other, called "ring", is a form of merels (known in England as three men's morris) which demands rather more ratiocination than a hard-fought game of noughts and crosses.

In "creek", the single player sits with his back to a rectangular diagram (see figure 1), and one of the audience moves the stones for him. This helper calls "Ready?", and the player starts calling. Thus, he says, "Creek (i.e., the start), stone (i.e., stone number one), pick it up! Go back (i.e., to the start)!" The helper removes the first stone, and the player starts again, calling, "Creek, nothing (i.e., the place where the first stone was), stone (i.e., the second stone), pick it up! Go back!" The second stone is removed, and the player starts again. "Creek, nothing, nothing, stone (i.e., the third), pick it up! Go back!" On the fourth round, the player calls, "Creek, nothing, nothing, nothing, creek (i.e., the second diagonal), stone (i.e., the fourth), pick it up! Go back!"

This procedure should be repeated until, in twelve runs, the player has reached and removed the twelfth stone, and, on the thirteenth run, goes straight through to the starting point or "creek." A perfect score is thus thirteen runs. But each time the player errs, he must return to the start and repeat that run. If, e.g., he has made seven successful essays, then on the eighth miscalculates and tells his helper to pick up the seventh stone, which has already gone, he must go back and make that run again. Or, e.g., he must go back if he miscalls stone for "creek," or *vice versa*. Most errors occur after the first six or seven stones have been removed; and each error makes it progressively harder for the player to recall the current positions of the stones. Added to this difficulty is the tumult of jeers and offers of advice from the audience.

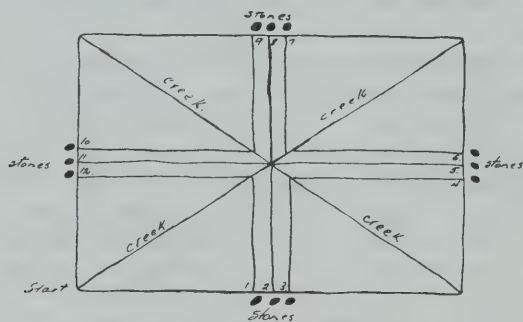
Individuals' scores vary markedly. One man, the best I saw, played frequently without making more than three or four errors per game; i.e., his score was generally about sixteen or seventeen runs. A few men consistently made from seven to ten errors per game. Most made from fifteen to twenty per game; and a very few could never finish the circuit before everyone's patience was exhausted. The game generated much excitement; and the competitive striving of the players was very noticeable. It appeared to me that men who generally scored best in this game were those whom, on other grounds, I thought to be more intelligent than the general population of the camp. They were, e.g., men who could quickly seize upon anomalies in genealogies, who could infer general social rules from specific social

¹ This fieldwork was carried out under the auspices of the Research Committee and the Department of Anthropology of the University of Sydney.

² Vide H. J. R. Murray *A History of Boardgames other than Chess*, 1952.

situations, who could recall and reproduce large numbers of totemic patterns. For this reason, I suggest that it may be possible to modify and standardize this game for use in the field as psychological test material for both literate and non-literate subjects.

The other game, "ring" or three men's morris, is not such a riotous affair, but is quietly played by two opponents. Each places three counters side by side on radial points marked on the circumference of the circular "board" (see figure 2). If *A*, *B*, *C* and *a*, *b*, *c* are the respective counters of opponents *X* and *Y*, they can, e.g., be arranged either as *A*1, *B*2, *C*3, *a*4, *b*5, *c*6, or as *A*1, *B*2, *C*3, *a*5, *b*6, *c*7. Each player moves one counter in turn only to an unoccupied, adjacent point, including the centre. The object is to place one's own counters in a straight line through the centre. There is no rule as to who should move first. There is no capturing of men. Details of two sample games will indicate the pattern and inherent limitations of the game.



Opponent *Y* may move counter *b* from 5 to 0. *X* moves *A* from 1 to 8. Then it is *c* from 6 to 7; *B* from 2 to 1; *c* from 7 to 6. At this point, *C* could move indefinitely between 3 and 2, and *c* between 6 and 7. To keep the game alive, *A* must move to 7. Then *c* to 5; *A* to 6. *b* must vacate 0, because *a* and *c* cannot move one space to an unoccupied point. So *b* to 7; *B* to 0; *b* to 8; and *C* to 2. *X* wins because *A*, *B*, *C* are on the diameter 6-0-2.

Alternatively, *X* starts with *A* from 1 to 8; then *Y* moves *c* from 6 to 7; *b* from 5 to 6; *B* to 2; *a* from 4 to 5; *C* from 3 to 4. *Y* must now move to 0; so *a* to 0. Then *B* to 3; *a* to 1; *B* to 0, and *X* wins.

No real advantage lies with the player who starts first. The basis of the strategy seems to be to force the opponent to be first to occupy the central point, then to force him from the centre. Ego then goes on to the centre to win.

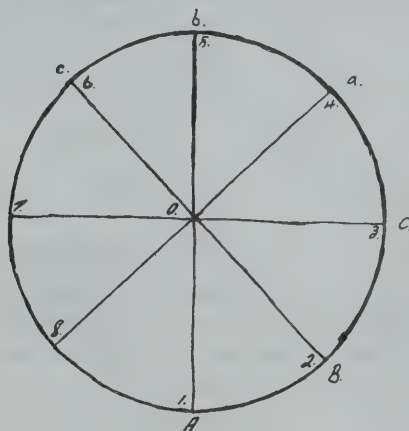
Older men at Hooker Creek maintain that both games have always been played by Walbiri, and they have no knowledge of their being introduced from outside the tribe. But the very form of the games, and their competitive aspects, make this doubtful; they do not "feel" Aboriginal. I have encountered no reports of either game in ethnographies of other Australian Aboriginal tribes. I can offer no suggestions about the possible origin of the "creek" game; but some comments can be made about the merels game.

In his synoptic tables, Murray³ indicates that although various forms of merels are widely played, none has been reported from Oceania. Apparently, merels occurs south of

³ Murray, op. cit., pp. 240-1.

the Equator only in Africa. The only game resembling merels which I can find reported from Oceania is the Maori *mu-torere*.⁴ This requires the same "board" as is used in three men's morris, the merels played by Walbiri and in other parts of the world. But each player uses four, not three men; and, as Murray⁵ points out, *mu-torere* is a game of blockade, not of alignment. In any case, Best⁶ states that the limited occurrence of *mu-torere* among East Cape Maori itself poses a problem. It seems possible that it is a local adaptation of *pedreria*, a Spanish form of three men's morris. Spaniards were in New Zealand early in the nineteenth century.

This still leaves the origin of Walbiri merels to be explained. It seems improbable that Walbiri invented it independently. Nor is it likely that they learned the game from Australian cattlemen, for, as far as I can ascertain, none of the forms of merels (except noughts and



crosses) were ever popular among white Australians. I had never encountered the game until I saw Walbiri playing it; none of my acquaintances of various age levels has ever seen it played.

Possible sources of the game, then, seem to be either or both German missionaries in the Central Australian desert, or the so-called "Afghans." German Lutherans established the Hermannsburg mission settlement among Pidjandjara and Western Aranda, the south-eastern neighbours of the Walbiri, in 1877, and have resided there continuously. They taught, among other things, games to the Aborigines; and it is possible that merels was among these. Furthermore, Pidjandjara and Walbiri have always maintained close contacts. But this suggestion raises the question: why do Walbiri play three men's morris, and not *kleine Mühlenspiel*, which involves a different "Board"?⁷

On the other hand, the "Afghans" (who included men from what is now Pakistan) probably did play three men's morris, for this, as well as other forms of merels, is played

⁴ Vide E. Best, "Games and Pastimes of the Maori," *New Zealand Dominion Museum Bulletin*, No. 8, pp. 60-62, 1925.

⁵ Murray, *op. cit.*, pp. 92-93.

⁶ Best, *op. cit.*, p. 62.

⁷ Murray, *op. cit.*, pp. 38-39.

throughout Moslem areas in southern Asia; e.g., *dris ath-thalatha, tre-guti, qirq, hujura*.⁸ "Afghans" first entered Australia in 1868, and were employed as camel-drivers in early explorations of the Central Australian deserts.⁹ More followed, to become mail-carriers and hawkers, mainly working around Marree and Oodnadatta, in South Australia, and Alice Springs, in Aranda country.¹⁰ Many employed Aborigines (including a few Walbiri) as rouseabouts and camel-minders. At least one Northern Territory cattle station (Inverway, near the Walbiri settlement at Hooker Creek) still uses pack camels under the charge of Aboriginal drivers originally trained by "Afghans."

On the basis of this evidence, I think we can assume that the presence of merels among Walbiri Aborigines is the result of straight-out borrowing of the game from Asian immigrants. There is nothing to suggest its independent invention in the Southern Hemisphere. This conclusion is compatible with Murray's argument¹¹ that Old World board games originated in the Near East, whence they were diffused in many directions, especially by Muslims.

M. J. MEGGITT ·

Australia: Material Culture.

Mitchell.

An Aboriginal Bone Industry. By S. R. Mitchell, *National Museum of Victoria, Melbourne.*

An Aboriginal bone industry with few parallels in Australia is found on the south-west coast of Victoria at Tower Hill Beach, Armstrong's Bay, south of Tower Hill, a recent point of volcanic eruption 7 miles west of Warrnambool. The site name usually assigned to the industry, Gorman's Lane, is a local thoroughfare that trends inland from the shore of Armstrong's Bay, which extends easterly and westerly for some miles from where the lane reaches the shore line. The sand dunes fringing the Bay rest on a recently emerged marine platform that extends inland for over a mile. This platform is a low-lying area covered by black soil, that was formerly swampy in parts. A recent survey by the Lands Department fixes its elevation as only 5 feet above low water mark. Shells collected from a drainage channel in the black soil have been identified by Miss Hope Macpherson, Conchologist to the National Museum of Victoria, as two estuarine gasteropods, *Coxiella confusa* (Smith) and *Syncera tasmanica* (T. Wood), also a freshwater species of bivalve similar to *Pisidium etheridgei* (Smith).

The dunes extend inland for up to 200 yards from the high water mark of the Bay and reach a height of 30 feet. The dune material is highly calcareous, composed, as it is of the comminuted remains of sea-shells. There is a thin cover of sand behind the dunes; in parts this has a hard crust 6 to 9 inches thick due to the solution and deposition of calcium carbonate in shallow water. The dunes were piled up on the black soil of the emergent marine platform. On their seaward side, bedded volcanic tuff ejected from Tower Hill appears to underlie the black soil. Beach shingles close to the former outlet of Merri River about half a mile east of

⁸ Murray, op. cit., pp. 39-41.

⁹ Vide A. F. Calvert, *The Exploration of Australia*, vol. II, pp. 258f., 1901.

¹⁰ Vide C. T. Madigan, *Central Australia*, 1936, passim.

¹¹ Murray, op. cit., pp. 229ff.

AN ABORIGINAL BONE INDUSTRY.



PLATE J.

Nine double pointed bones are illustrated in Plate J. These range in length from 45 mm. to 94 mm. Some are made from round bones others from split bones. They have in most cases been shaped by scraping and show striations left by stone scraping tools. Others are polished and may have been shaped by rubbing on stone.

The types represented are (a) round or flat bones, some of which are hollow, with a long taper to the points. Nos. 1, 2, 5, 6, 7, 8, (b) round or flat with a short taper to the points. Nos. 3, 4, 9, (c) split bones with a long taper one end and a short taper on the other. Nos. 10, 4, 12, (d) Fusiform Nos. 6, 7, 8.

No. 11 is a round bone 148 mm. in length, with a long taper on one end, the other is broken. This was probably a single end artefact. Nos. 12 to 23 have one end pointed, the other is broken. Some were probably double pointed bones. They range in length from 48 mm. to 85 mm.

Those made from split bone are Nos. 2, 4, 7, 8, 12, 13, 14, 15, 16, 18, 19; from round bones Nos. 1, 5, 11, 17, 20, 21, 23.

No. 19 is a thick split bone with a somewhat bluff point, Nos. 22 and 23 are probably broken awls.

AN ABORIGINAL BONE INDUSTRY.



PLATE K.

1. Fibula of *Macropus rufus* (Red Kangaroo) scraped to a spatulate working edge. 192 mm. long.
2. Fibula of *Macropus rufus*, scraped to a spatulate working edge, but damaged. 152 mm. long.
3. Ulna of *Macropus giganteus* (Great Grey Kangaroo) 160 mm. long, point broken.
4. Fibula of *M. billiardieri* (Rufous Wallaby) sharpened to point, 87 mm. in length.
5. Fibula of *M. giganteus* sharpened to spatulate edge, 150 mm. long with edge damaged.
6. Fibula of *M. giganteus* sharpened to gouge edge. 178 mm. long.
7. Fibula of wallaby, sp. indet. A needle pointed awl. 85 mm. long.

The identifications of these bones were made by Mr. Brazenor, Mammalogist of the National Museum, Melbourne. He states that *M. giganteus* is unknown south of the Mallee.

Gorman's Lane consist of slabs of compacted tuff, which seemingly extends a considerable distance seawards. Basalt occurs inshore in Armstrong's Bay, forming with the volcanic ash a platform from which the Aborigines produced shell-fish between tides.

Mahony (1912) recorded from the Gorman's Lane site the following animal remains ; they were identified for him by Kershaw, formerly Director of the National Museum : *Macropus giganteus* (Zimm.) Grey Kangaroo, *M. rufus* (Desm.) Great Red Kangaroo, *Sarcophilus ursinus* (Harris) Tasmanian Devil, *Phascolumys mitchelli* (Owen) Wombat, *Dasyurus viverrinus* (Shaw) Native Cat, *Trichosurus vulpecula* (Kerr) Common Phalanger, *Pseudochirus peregrinus* (Bodd.) (= *laniginosus*) Ring Tailed Phalanger, *Parameles* sp. Bandicoot, also whale, fish, birds, fox and rat.

It is evident that formerly conditions behind the shoreline were favourable to the existence of a coastal vegetation that afforded shelter and fuel to the aborigines. The vegetation, too, was a cover for the fauna one of which, the Tasmanian Devil, is now extinct on the mainland. Obviously, the Aborigines camped mainly on low sand rises and in the depressions between the dunes. They left shell middens that were sooner or later covered by the shifting sand. Some, however, have since been uncovered and disintegrated by wind erosion. In this manner the bone industry recorded by Kenyon (1904) was exposed. Referring to Armstrong's Bay he wrote (Mss. 1904) :

" My first experience on this strip was fifty years ago when the whole surface from Gorman's Lane South of Koroit and Tower Hill Lake was strewn with bone remains much decomposed and largely human. Amongst these, on the first occasion I picked up over one hundred bone implements discarding as many more as too fragmentary and decomposed. On later visits probably a dozen in all, I picked up more of the decayed specimens but always got several dozen. They were single and double pointed ; I should estimate that altogether a thousand specimens have been picked up. The single points generally splint (sic) bones of kangaroos and small marsupials, whale, seal, dingo and human bones being also used, varied in length from three to eighteen inches. The points acute or needle shaped, blunt or obtuse, chisel and gouge edged. There does not seem to have been any particular use, i.e., no relationship between length and point can be found. As to double pointed bones, they range from 1½ inches to about 6 inches in length, occasionally formed from hollow bones, points from blunt to sharp but never chisel pointed. Usually both points are alike in angle of point but not invariably. Certainly some were used as nose bones as the early settlers have recorded such use. The very small ones do not seem to be of possible use as spear points, the medium length ones predominate and they seem unsuitable as points. The longer ones, 4 inches to 6 inches, are very scarce and do not form more than one percent of the whole. There seems no particular reason for this abnormal profusion of bone implements in the Warrnambool-Port Fairy district. Conditions, surrounding country, water supply, timber supply, food supply, animal fish and molluscs are similar to other portions of the coast where bone implements are not found though exposure is similar."

Again referring to the same site he stated (1912) : " The bay it may be mentioned, forms with its fringing basalt reefs a natural trap for whales. When one was trapped, tribes assembled from far and near, even before the carcass had reached that highly desirable state from an aboriginal point of view that its presence needed no announcement. . . . At Armstrong's Bay and the vicinity bone implements of all sizes up to 18 inches in length, with flat chisel or

more or less blunt needle points, abound. Some are nose ornaments, some according to Brough Smyth are fish hooks (gorges) though this seems doubtful. Some are awls or needles, but the most seem to be used in removing molluscs from their shells."

The writer did not have an opportunity of visiting this site until much later than Kenyon reported his discovery, and by then the accumulation of bone remains had disappeared. I have since, however, collected a large number of bone artifacts from the disintegrated shell middens nearer the coast, some of which are illustrated in Plates J and K. The midden material sorted over was composed of black sand, slightly burned, shells mainly belonging to the genus *Turbo* but some to *Haliotis* and *Donax*, bone fragments, and bone artifacts. It was noticed that the body whorls of the *Turbo* shells were usually complete and many showed effects of heating; it is apparent that they had been placed in the hot ashes of the camp fire and the contents extracted probably with a pointed bone implement. The *Turbo* body whorls, where the middens are widely dispersed, have mostly disappeared leaving thousands of opercula as evidence of their former abundance. Hammer and anvil-stones for breaking the whorls are comparatively scarce. It would appear that the technique of the Armstrong's Bay Aborigines was different to that, for instance, of the Bream Creek Aborigines who used hammer and anvil-stones to break the shells (Mitchell, 1949). Kenyon quotes Dendy (1902) who found in New Zealand some sharpened pieces of bird's bones, used, as he was told, to extract shell-fish from their shells.

At the eastern end and seaward side of the dunes are the remains of aboriginal camping places consisting of black sandy soil, wood ash, fragments of bone, numerous bone artifacts, blackened shells, and an occasional flint flake. These camping places are only a few feet above sea-level and until recently were covered with sand; here marine erosion is proceeding apace and the remains will soon disappear. All the evidence points to a very recent age for these bone artefacts. Where they have been covered by reasonably dry sand they may be preserved indefinitely, but those noted by Kenyon and Mahony had been recently uncovered and have since disappeared. The condition of preservation is no guide to their antiquity but the geological evidence is conclusive. The last activity of the Tower Hill volcano was very recent, possibly as late as 2000 years ago (Keble, 1947). The tuff on which the black soil rests came from the volcano during its last phase of activity and the dunes which have covered the middens rest on this black soil. The antiquity of the industry, could, perhaps, be within historical time.¹

It is significant that pointed bones have also been found in numbers near the shoreline at Four-mile Creek, east of Port Macdonnell, S.A., 80 miles west of Armstrong's Bay. Both localities are on the south-east coast of the mainland and relatively close. Some were found at the Four-mile Creek by Mr. Lindsay Black of Leeton, N.S.W. In referring to these bone artifacts in his possession he states that "you will note that five are pointed both ends and are very sharp. I have twenty-two others, pointed at one end but a number are badly worn. We found this lot in about half-an-hour." They were gathered in a running channel cut to drain a swamp and were evidently washed out of an old camp site. In some of the drained swamps in this locality there are small rises, some of which were probably occupied by

¹ Since this paper was written (1950) Mr. E. D. Gill, Palaeontologist to the National Museum of Victoria, has had a Radio-carbon determination made on charcoal from a midden on this site. The midden is probably the oldest in the immediate vicinity and has yielded many pointed bones, flint flakes, shell remains and charcoal. The Carbon 14 count showed an age of 538 plus or minus 200 years.

Aborigines—rises somewhat akin to the Mirrn-yong or native ovens of Victoria. The double pointed bones range in length from 165 mm. to 200 mm. and about 7 mm. in diameter in their thickest part. Those pointed at one end measure from 100 mm. to 150 mm. and may have been double pointed bones broken at one end. The bones are hollow and have been identified as the radius bones of Swan's wings. The comparatively fresh state of some would indicate favourable conditions for their preservation and this was probably due to the limestone that covers this part of S.A. The formation of lime "biscuits" as mentioned by Tenison Wood (1862) suggests waters carrying lime in solution.

Few undoubted bone artifacts have been recorded from Victoria. Brough Smyth mentions two polished bone awls found on a shell heap at the mouth of the Creek near Cape Patterson and Spencer states "Kershaw found a bone awl on the middens at Wilson's Promontory." Several pointed bones were found by F. Schaefer on an old midden at Brighton Beach. Cape Otway, Leigh River, Port Fairy, Geelong and Barwon Heads are other localities where bone artifacts have been found. Hale and Tindale (1930) described bone artefacts from the Devon Downs Shelter on the Murray River. It is significant that most of these sites are near the seashore. McCarthy (1940) discussed the distribution and use of the muduk bone parts in eastern Australia and Melonesia.

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S. R. MITCHELL.

Australia : Material Culture.**McCarthy.**

Records of the Rock Engravings of the Sydney District : Nos. 56-71. Berowra and Cowan District. By Frederick D. McCarthy, Curator of Anthropology, Australian Museum, Sydney, and F. Hansen.

The galleries described in this paper are situated chiefly in the Berowra and Cowan district, between Hornsby and Brooklyn. Two sites are near Bobbin Head in Kuring-gai Chase National Park. This general area is one of the important centres for ritual figures and galleries among the engravings of the Sydney-Hawkesbury area, and several groups of this kind are included in this series.

In 1946, Mr. Hansen inquired at the Australian Museum about rock engravings, many of which he had seen during his bush walks. He was shown how to record them, and he decided to concentrate on the above district and also Kuring-gai Chase. He interested the First Beecroft Rover Scouts and the First Hornsby Boy Scouts in the project, and assisted by Messrs. J. Anderson, T. Moore and R. Pattinson, and by Miss M. Judkins, made a detailed traverse of the area, ridge by ridge, between 1946 and 1949. Many new sites were found, and also additional figures in several groups published by Campbell (1899). The sites described in this paper were recorded by Mr. Hansen and the First Hornsby Boy Scouts, assisted by the above individuals in some cases. The scale adopted is half an inch to one foot, and all map references are to the Broken Bay Military Map. Other sites recorded in Kuring-gai Chase will be described in subsequent papers.

The measurements of the grooves given are average dimensions, not the maximums given in previous papers in this series. Where grooves in the one group are of different dimensions they are recorded separately, otherwise the average width and depth of outlines are stated for a group as a whole.

GROUP 56. BEROWRA.

Situated on a rough rock ledge, partially covered with moss, north-east of Poppy Trig. Station, at the northern end of Berowra township. There is an extensive view down Joe Craft's creek to the north-north-east. The map reference is 154.468.

Series I (Sheet I, Fig. A). The group consists of (1) an emu standing upright, with no toes; (2) echidna; (3) three leaping kangaroos or wallabies about 6 ft. long, the lean body of two contrasting with the rounded body and fat tail of the other one, and no toes are shown.

Series II (Sheet I, Fig. B). 75 yards west of series I, on the same rock ledge, are (6) a man almost life size; (7) a large bird 5 ft. 6 in. long, in flight, whose wings are uneven and what appears to be the neck and head of an emu is incorporated in the figure; (8) a deity figure 3 ft. 9 in. long in profile, of the one-legged Daramulan type, with an emu-like body, human leg and foot, head and arm; (9) a man 4 ft. 4 in. long with three eyes and a long penis; (10) a poorly drawn emu; (11) 8 ft. away is a shield or bullroarer almost 2 ft. long.

Series I is now hard to see, the weathered grooves being $\frac{3}{8}$ in. wide in the kangaroo and echidna, and $\frac{1}{2}$ in. wide in the emu, but no punctures are visible in the grooves. Figs. 6, 9-11 are lightly grooved in series II, and 7-8 are deeply pitted and well preserved.

Totemic animals important in the food supply comprise series I, but the deity, with the emu and possibly a bullroarer, indicate that series II had a ritual significance.

GROUP 57. BEROWRA.

Series I. (Sheet I, Fig. C.). Situated 300 yards west of group 56, series II, the map reference being 153.468. The rock forms part of a creek bed and the view is restricted. The site is 200 yards from a road running northwards from Poppy Trig. Station.

The figures consist of four male kangaroos or wallabies in leaping postures, all approximately 6 ft. long, the toes and fore-paws being shown on three which have a long curved hind leg typical of these animals, and although in profile both eyes are shown in Figs. 17-18. Fig. 13 is an unique but imperfect emu 8 ft. long in which parallel lines indicate the feathers. It is engraved over Fig. 12, a wallaby. Fig. 15 is a dingo in a stiff conventionalized posture, beside 19 axe-grinding grooves. Fig. 19 consists of four small circles, around a set of fifteen separate punctures, and Fig. 20 is another circle.

The outlines of Figs. 12-16 are weathered, without punctures showing, but the pair of kangaroos or wallabies 40 ft. away have outlines $\frac{1}{8}$ in. wide and $\frac{1}{4}$ in. deep, displaying punctures. Fig. 17 is more lightly grooved than Fig. 18. The outlines of the circles are $\frac{1}{8}$ in. deep and $\frac{1}{4}$ in. wide.

This spot was apparently a favoured resting place of the Aboriginal men, who ground the blades of their axes and depicted some of the game in the vicinity. It is remarkable to find two unique figures, Nos. 12 and 19, in such a small group, while dingo portrayals are also rare. It is possible that Fig. 19 represents an emu's nest with a clutch of eggs shown as the separate pits.

There are also engraved water channels in and around the pot-holes on this rock. These have been seen elsewhere and were apparently useful in dry weather as a means of filling all of the potholes while the water was still running.

Series II (Sheet I, Fig. D). Situated on a pink colored sandstone outcrop on the opposite side of the creek to series I. The figures comprise (21) a doubled up snake (or earthworm) almost 4 ft. long in its bent position, with a single puncture beside its nose; (22-23) two leaping kangaroos or wallabies, about 6 ft. long, with both eyes shown, several dots (probably spear marks) on their bodies, and a girdle at the base of the tail. The bent hind leg of Fig. 22 forms an interesting contrast with the curved limb of Fig. 23. The outlines consist of round conjoined punctures $\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. deep, being clearly engraved and well preserved.

GROUP 58. BEROWRA (Sheet I, Fig. E).

Situated on a large rock ledge over which a creek flows into a gully west of the Pacific Highway, on the northern side of Berowra township. The rock is known as "Devil Hole," and a safety fence extends across it to prevent people falling on its slippery surface. Campbell (1899, Pl. xxvi, Fig. 1) has recorded two kangaroos or wallabies, an ant, and some axe grinding grooves on this rock. An additional figure of a lizard (Fig. 24), with a weathered outline of round conjoined punctures, exists 2 ft. north of the fence and 5 ft. south of the western wallaby in Campbell's plate.

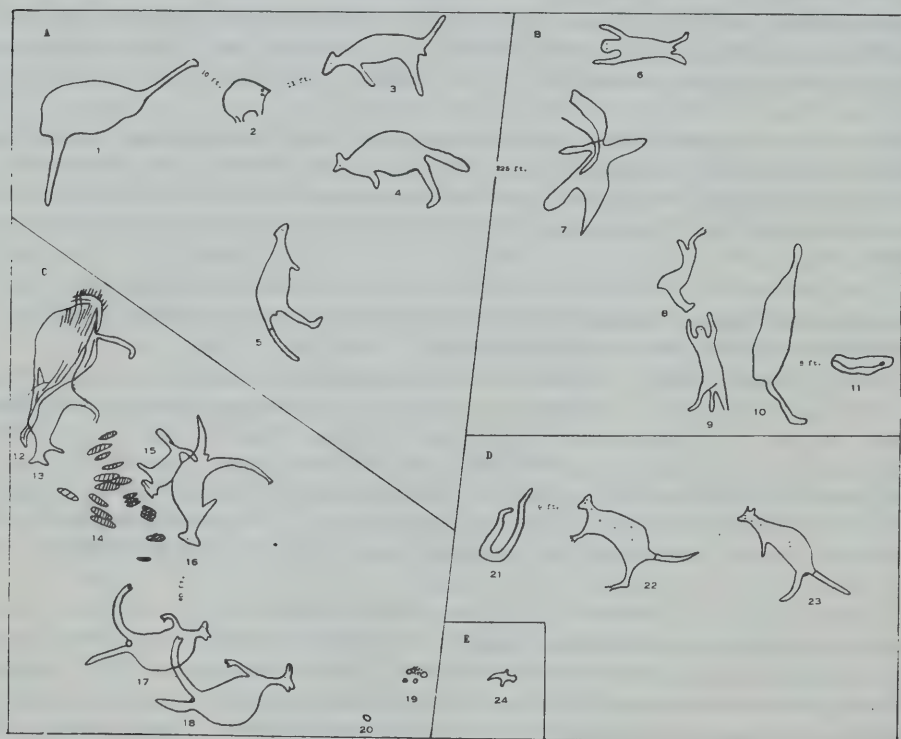
GROUP 59. COWAN (Sheet 3, Fig. A).

Situated on a rough rock surface on the western side of the second saddle on the ridge running northward from Djarra Trig. Station, between the Pacific Highway and Berowra Waters, at the head of Joe Craft's creek, the map reference being 160.506. There is a local view

towards the south-west. The only engraving is that of a whale just over 10 ft. long, with an unusually large number of fins. Its outline consists of conjoined punctures, clearly defined, $\frac{1}{2}$ in. wide and $\frac{3}{8}$ in. deep.

GROUP 60. COWAN (Sheet 3, Fig. B).

Situated on a smooth slightly sloping rock at ground levels at the eastern end of the last saddle on the ridge running westward from Djarra Trig. Station, and on the southern slope of the ridge. The site is about one and a half miles north-east of the Trig Station, between Pacific Highway and Berowra Waters, near the head of Bujwa creek. It is surrounded by open forest and has no view. The map reference is 144.512.



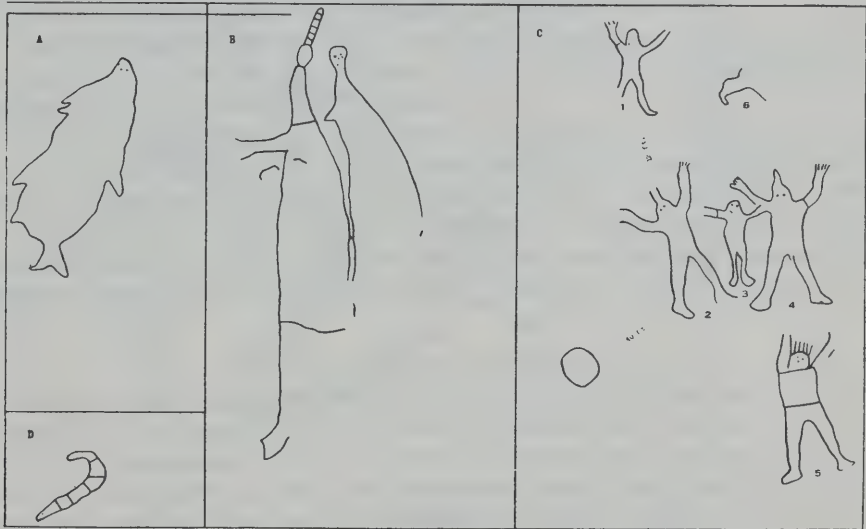
Sheet 1, Figs. A, B, C, D and E.

On this rock are engraved two incomplete ancestral figures. Fig. 1, just over 20 ft. long, is in profile with one arm, one leg and a tapered but flat topped head. It is wearing a necklet and girdle, and from its head projects a key-shaped object with an eye on its oval end and parallel bars across its shaft. There are also several curved lines below its arm. Fig. 2 is close beside the back of Fig. 1., and depicts the upper half of a woman whose neck is well defined, she has five eyes, and a pointed breast.

These are old figures, with weathered outlines, faded out in parts, 1 in. wide and $\frac{1}{8}$ in. deep. They probably represent a deity or culture hero of the Daramulan type and his wife. The strange keyshaped object on the head of the male may be a headdress or other sacred object. They are probably figures which were superseded by another site in the times of the Aborigines.

GROUP 61. BEROWRA (Sheet 3, Fig. C).

Situated in the middle of an extensive, rough and rocky saddle on a ridge between Kimmerakong creek and Peat's Bight. A creek flows south-west from this saddle into a bay in the mud flats of Kimmerakong creek. Thick bush borders the saddle and obscures the views. The map reference is 179.539. The figures are somewhat scattered, some of them being separated by low bushes.



Sheet 3, Figs. A, B, C and D.

They are as follows. (1-5) Four men and a boy, all shown in the upraised arms position, several are wearing armlets, one a girdle, two have their hair bound into a pointed coil, one has a rayed headband (or his hair is sticking up vertically), and they are approximately life size ; (6) probably the head and neck of a large bird ; (7) circle.

They are all old weathered figures difficult to discern unless the sun is low and casts shadows in the grooves. The outlines are $\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. deep, but very shallow in parts.

The group may represent an initiate with his guardian and some of the other men belonging to the totemic clan, the bird being the totem, and the circle a sacred camp, waterhole, the moon or sun. Certainly the figures embody some slight animation as though performing a ceremony.

GROUP 62. BEROWRA (Sheet 3, Fig. D).

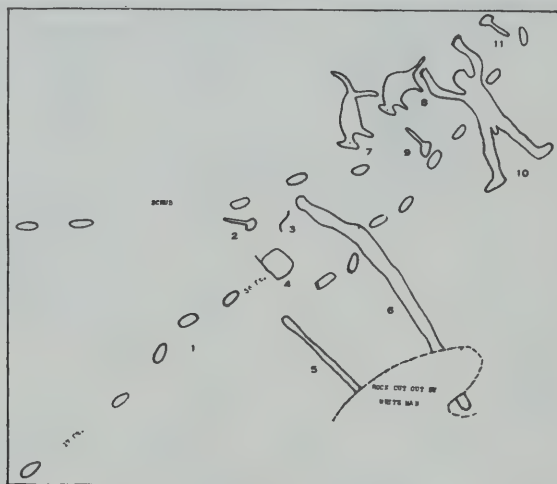
Situated about one mile north-west of group 61 on the same ridge, on a large segmented expanse of sandstone bearing the group described by Campbell (1899, P. xxii, Fig. 3, pp. 50-51). The rock is broken up by patches of low bushes and rocks strewn all over its surface. There

are 25 heaps of stone on the north-eastern section and 30 or more on the south-western section. The map reference is 168.549.

An additional figure, that of a swimming and barred eel, was found 25 ft. north-west of the two fish shown in Campbell's plate. Its outline consists of conjoined punctures $\frac{3}{8}$ in. wide and $\frac{1}{4}$ in. deep, but the grooves are old and weathered.

GROUP 63. MT. COLAH (Sheet 4).

Situated on a sloping rock, about 30 yards west of the Pacific Highway at the first road cutting north of the railway station. Medium bush surrounds the site, from which views were available. At the time of recording the man's face had been hacked away with a pick, and the rock was chipped and covered with names. A house has now been built on the site.



Sheet 4.

The group consists of (1) two lines of human foot tracks or mudoes converging (from west and south-west) among a group of other figures comprising (2) a spherical headed club or hafted axe; (3) curved line; (4) rectangular figure; (5-6) two snakes, the larger one 13 ft. 4 in. long (portion of both has been cut away, as shown); (7-8) two wallabies in a feeding posture; (9, 11) two spherical headed clubs or hafted axes; (10) man in conventional upraised arms pose, with fingers shown on both hands.

The grooves were clearly defined and well preserved, of rounded conjoined punctures $\frac{1}{2}$ in. wide and $\frac{3}{8}$ in. deep in the man, larger snake, and some of the munoos, but the remainder were shallow and old.

This is obviously a hunting composition showing the hunter's foot tracks, his weapons and quarry, and himself. One of the clubs may represent another hunter. The presence of the huge pythons, and also the meaning of the rectangular figure, cannot be explained.

GROUP 64. BLACKFELLOW'S HEAD SPUR, HORNSBY.

Series I (Sheet 8, Fig. C). Engraved on a rock ledge on the eastern side of a small fissure through which runs a creek with its source near the large rock on which is inscribed

"Blackfellow's Head," on top of a ridge west of the southern section of Old Man's valley, west of Hornsby. The site is 60 ft. below the top of the hill and about 200 yards north of the inscribed rock, the map reference being 078.359. A road leads to the site from Duffy's Avenue, Thornleigh.

The group consists of a file of three fish of the bream type, life size, a few feet away from a poorly drawn kangaroo or wallaby, just over 6 ft. long. The latter has a bar across the base of the tail, one on the shoulder, a line down the front limb, and four eyes.

The outlines consist of round conjoined punctures $\frac{1}{4}$ in. wide and $\frac{1}{8}$ in. deep.

Series II (Sheet 8, Fig. D). These two kangaroos or wallabies are engraved on a smooth rock at ground level 30 yards south-west of series I, and have similar outlines. The two bucks are leaping, both have fingers on the fore-paw, and the smaller one is slightly better proportioned than the bigger one. They are about life size.

Series III (Sheet 8, Fig. B). On a rough patch of rock about 60 yards north of series II are engraved two small leaping wallabies. They are very old and weathered figures, no punctures being visible in the shallow grooves.

Series IV (Sheet 8, Fig. E). A fine koala bear engraved on a large partially segmented rock, among other similar rocks, about 80 yards south-east of series I and 30 ft. higher up the ridge. Its outlines are well preserved conjoined punctures. Digits are shown on both limbs.

There are traces of heaps of stones on this rock but they are now broken down. On a nearby rock, from which there is a lovely view into the valley, six large stones are placed in a circular arrangement with the biggest one, 3 ft. long, in the middle. The others are from 2 to 2 ft. 6 in. long.

GROUP 65. HORNSBY (Sheet 8, Fig. A).

Four kangaroos and a small fish engraved on a rough rock, surrounded by dense scrub, at the junction of the Galston Road with Grevillea Crescent, about 2 miles north of Hornsby. There are two kangaroos at each end of the group, leaping towards each other, the largest one being 10 ft. long, with a big eye. Two display both eyes. The outlines of the southern pair are 2 in. wide and $\frac{3}{4}$ in. deep, the groove having been rubbed smooth, but the others are almost weathered away. The group has been damaged by a vandal with a pick.

GROUP 66. PENNANT HILLS (Sheet 8, Fig. F).

The face and outline of the arms of a man are engraved on the upright face of a rock situated at the junction of two creeks, known as Honey-suckle Point. This rock is about 250 yards outside the boundary of the Boy Scouts Training camp, and is 30 yards from the eastern bank of a creek running through the camp. The map reference is 087.313. The engraving has sharply defined punctures showing in an outline $\frac{1}{4}$ in. deep and $\frac{1}{2}$ in. wide.

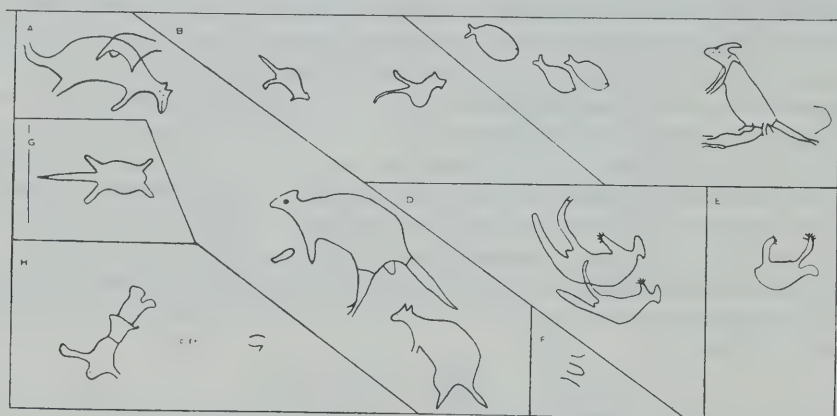
GROUP 67. BOBBIN HEAD (Sheet 8, Fig. G).

Situated on the next rock to the east from the group recorded by Campbell (1899, Pl. xxii, Figs. 5-6), 150 yards north of Bobbin Trig. Station, the map reference being 165.401. It is a sloping rock in dense bush, with a view of Cowan Creek. The figure of a flying phalanger 5 f. 6 in. long is engraved here. It has an outline of round conjoined punctures $\frac{1}{4}$ in. wide and $\frac{1}{8}$ in. deep, but faint and weathered.

GROUP 68. BOBBIN HEAD (Sheet 8, Fig. H).

This insignificant rock in the scrub is in a slight saddle on the spur formed by a bend in Cowan Creek south of the park at Bobbin Head. It is approached at a point on the road to Turramurra 600 yards south of the bridge, proceeding across a mud flat to the eastern bank and through a patch of spiky Hakeas or needle bush. The map reference is 165.401. The site is due south of the bridge.

Apart from a few faded lines of old figures, there remains an unusual engraving of a man, 4 ft. 9 in. high, wearing an apron-like garment, and his legs are not separated until the ankle area. His outline is an old weathered groove $\frac{3}{8}$ in. wide and $\frac{1}{4}$ in. deep, not showing any punctures.



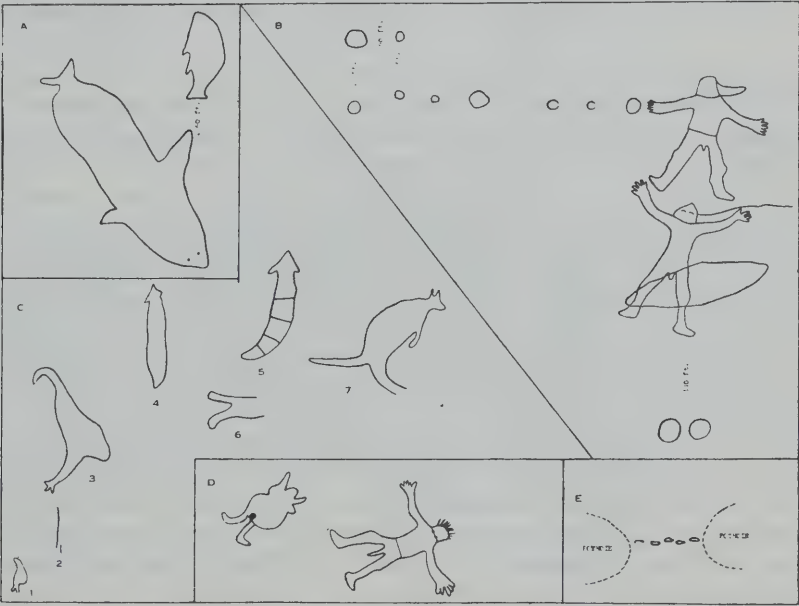
Sheet 8, Figs. A, B, C, D, E, F, G and H.

GROUP 69. BROOKLYN.

Series I (Sheet 12, Fig. A). Engraved on the eastern side of a long rock surface running along the side of the ridge about one-third of the way up the slope between the dam and the railway line. The map reference is 220.642. The overhead lines almost pass over this rock. There is a whale 11 ft. long, and either another young whale or a fish of the bream type 4 ft. long. The outlines are round conjoined punctures $\frac{1}{4}$ in. wide and $\frac{1}{8}$ in. deep. An extensive view of the Hawkesbury river and Long Island may be seen from this site.

Series II (Sheet 12, Fig. B). Engraved on the same outcrop of rock as series I, but about a quarter mile to the west, the map reference being 218.540. This unusual group depicts nine circles from 4 to 12 in. in diameter, 3 to 50 ft. apart, arranged in a precise pattern extending from the right hand of one of the two men who are approximately life size. The men have fingers on each hand, their knees are clearly shown, and they are wearing headdresses from which a pendant extends from one, and a conical figure (possibly the hair in a coil) from the head of the other. The inclusion of eye-brows in the face of one of them is unusual. Across the legs of one man is a boat-shaped object which is probably his bark canoe or shield, and 10 ft. below him is another pair of circles. Their outlines are rounded conjoined punctures $\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. deep. There are also axe grinding grooves and engraved water channels at this site. The group is a distinct composition, probably ritual in nature, but its meaning and the incident it illustrates are not known.

Series III (Sheet 12, Fig. C). Fifty paces west of series II, on a sloping rock and on its almost upright side, the map reference being 217.541, is the following series of seven figures : (1 and 3) young and adult emus with portion of another figure below them ; (4-5) two eels, one barred ; (6) legs of a human figure ; (7) kangaroo in leaping posture (8) pair of circles 110 ft. from the men in series I. There are some long axe grinding grooves and engraved water channels in and between the many fine potholes at this site. The outline of the wallaby is old and weathered but those of the other figures consist of well preserved round conjoined punctures $\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. deep.



Sheet 12, Figs. A, B, C, D and E.

GROUP 70. COWAN (Sheet 12, Fig. D).

This rock is situated on top of the ridge above and immediately to the east of the railway line between Cowan and Brooklyn, about half a mile along the ridge from its junction with the Pacific Highway at the gates of the Muogamarra Sanctuary. Thirty yards south of the figures is a high yellow sandstone cliff, from which there is a view to the north-west. The map reference is 200.522.

The figures consist of a pregnant woman, short and rounded, with a man (her husband) wearing a rayed headband, girdle, and a band across his eyes which are placed unusually low on his face. His fingers are very big. Although he appears to be blind-folded he is probably decorated with a painted line across his face. The woman is only 3 ft. 9 in. high and the man 5 ft. 6 in. Punctures are visible in the outlines. The reason for the depiction of this subject, known at several other sites, is unknown, apart from the recording of an important phase of a woman's life, particularly if the man and woman are of mythological significance.

GROUP 71. COWAN (Sheet 12, Fig. E).

Engraved on a smooth rock between two potholes (now filled with soil and low bushes) are five human foot tracks the size of a child's foot, leading from one pothole to the other. The site is on the eastern slope of a ridge, about a furlong south of the saddle below and south of "The Pimple," 80 ft. higher up than the saddle. The map reference is 222.531. This and other sites illustrate how important were these potholes in the daily and ritual life of the Aborigines. They hold water during the dry summer months, and were commonly the centre of axe grinding activities.

F. D. MCCARTHY.

Australia : Mythology.

Calley.

Three Bandjalang Legends. By Malcolm J. C. Calley, M.A., *Department of Anthropology, University of Sydney.*

I. INTRODUCTORY

The following three tales are among about thirty I collected from the remnants of the Bandjalang tribe on the far north coast of New South Wales during 1954 and 1955. I have chosen to treat these three together because they all draw attention to stresses in pre-contact Bandjalang society. It is a commonplace that legends and folk tales of all peoples provide an outlet for anti-social feelings that are not generally permitted open expression. In a stratified society the poor man can identify with the penniless hero who successfully woos the King's beautiful daughter and the skivey with Cinderella who marries her prince. Today some sections of the population derive similar satisfactions from seeing certain kinds of film.

In Aboriginal society, which lacks stratification, it is in the field of kinship that the main stresses occur. Social patterns of subordination and superordination are expressed in terms of kinship and one individual has authority over another by virtue of the kinship relationships between them. Kinship determines the patterns of expected behaviour between each individual and every other.

The stresses which are highlighted in the following tales are those between a man and his mother's brother, *gauung* and a man and his elder brother, *gagung*. Among the Bandjalang, the mother's brother was a child's chief disciplinarian. The father played with his child, fondled him and probably spoiled him. It was left to the mother's brother to see that an infant grew up to be a good Bandjalang mindful of his obligations to his various kinds of kinsmen. Because of this, the child's resentment at being disciplined was directed towards his mother's brother and it is this resentment that finds expression in the first and second tales.

In the first legend, "Bogar-bogarni," the word, *njimbun* has the primary meaning of "goblin," a diminutive, sometimes malicious spirit which inhabited mountains and rocky country. It has been preserved in the name of the township, Nimbin, about fifteen miles north of Lismore. The word can also, as in this story, refer to any short man, particularly if he is well built. The *njimbun* in Bandjalang folk lore is often rather like Tom Thumb in European folk lore. It is likely that my informants had forgotten part of this story or that it was not passed on to them by their forebears. "Bogar-bogarni" may be the concluding incident in what was once a much longer legend.

In the second legend, "The Gaunggan," the *gaung* is presented as a *dubaigali*, a "liker of young girls." To the Bandjalang, a *dubaigali* is a figure of fun comparable with the office boss in our society who is sugar daddy to his typists. A *dubaigali* is an elderly man who fails to act toward young girls with the dignity appropriate to his age and position in the kinship structure. Modern Bandgalang never tire of retelling this story which never fails to evoke hilarious laughter.

The words *balugan* and *gaunggan* require some explanation. *Balugan* means "handsome young man," the ideally good-looking male. The hero of every legend and myth is referred to as a *balugan* whether he be warrior, lover or culture hero. *Gaunggan* is the exact female equivalent of *Balugan* and can refer to the mother goddess, to the fairy or to any particularly attractive Aboriginal girl.

The mother's brother was not the only person who derived authority from his kinship position. An elder brother was cast in a very similar role, though he was expected to advise and protect his younger brother as well as instructing him in social behaviour. In Bandjalang, there is no word for "brother" but only words for "elder brother," *gagung* and "younger brother", *banam*. The third legend expresses the stress implicit in the younger brother—elder brother relationship in Bandjalang society. There is also a second theme in this legend not directly related to kinship. Bandjalang males passed through two degrees of initiation before becoming full members of the tribe and being permitted to marry. The first ceremony, the *gibera*, was undergone between about eight and twelve years of age and the second ceremony, the *marugan*, in some cases, as late as twenty years of age. Between the two ceremonies, the youth was under the guardianship of his paternal grandfather who instructed him in social rules and the esoteric knowledge of the male cult. For a period of several years, the youth was expected to remain celibate, any infringement of this taboo being punishable by death at the hands of the fully initiated men or the *butheram* (spirits of the bush), or both.

The virtuous neophyte seduced by a lustful girl is an oft repeated theme in Bandjalang legend. It expresses the tensions experienced by the young man in finding his sexual urges frustrated. The fact that the girl is always represented as the aggressor, and that the neophyte always dies as a result of breaking the taboo indicated how powerful a sanction it was.

The story of Ngoiloigir reveals ambivalences of attitude. Aborigines express themselves as sorry for the younger brother, the neophyte. They also feel that he merited punishment by breaking so strict a taboo. Ngoiloigir was justifiably incensed at his younger brother's relations with his wife, but was not justified in taking revenge as he did. His correct course of action would have been to complain to his cross-cousins (who were also cross-cousins of his younger brother) who could have punished the offence by ridicule or a sound pummelling. It is possible that Ngoiloigir would have been morally obliged to allow a younger brother access to one of his wives. A younger brother had the right to make use of any of an older brother's property without asking permission and this right may have been extended to wives also. It is important that the sin of the younger brother was his failure to remain chaste until he had passed though the *marugan* ceremony. Compared with this, his having sexual relations with a woman married to someone else was of very minor importance indeed. The sin of Ngoiloigir was his killing a younger brother whom it was his duty to guide and protect. In doing so, he acted in a fashion contrary to one of the most important principles of Bandjalang social organisation, the solidarity of a group of brothers.

The texts of the following legends are syntheses of the accounts of several informants. Often details remembered by one informant had been forgotten by others while informants from different areas could sometimes provide variant versions. There was no orthodox version of any Bandjalong legend. The main incidents alone remained constant and expert storytellers were highly thought of for their ability to invent detail. Even today aged informants can remember the expert turn of phrase employed by these men fifty or sixty years ago.

2. BOGARBOGARNI*

A long time ago (*guriabu*), there lived a *njimbun*, a "little fellow" among the Minjangbal clans of Southern Queensland. One day his mother's brother asked him to go looking for honey with him in the mountains. They searched all day without any success, until on what is known to-day as Mt. Ernest, they came to a cave.

Now the uncle secretly disliked his nephew and wanted to get rid of him, so he said to the *njimbun*:

"Maybe I am too big to get in there, you had better go in and see if there are any *gubbai* (honey bees)." The cave was dark and the *njimbun* was reluctant to venture too far in, but his uncle kept on saying:

"*Yena bogar, bogar-bogar*. (Go farther, farther still)" until the little fellow was out of sight. He then seized great armfuls of dead leaves and dry sticks and built a huge fire at the mouth of the cave. On the fire, he piled green leaves so that even if the *njimbun* were not incinerated he would be suffocated with smoke.

The *njimbun*, however, found a crevice leading to the outer air at the back of the cave, and being a very little fellow, he was able to squeeze through and hide himself in the scrub nearby.

Presently his uncle felt pangs of remorse for what he had done and sat under a tree lamenting. When the fire had burned down, he went into the cave to find the body of his nephew. The *njimbun* seized his opportunity and quickly stoked up the fire again, piling more and more fuel on it. His uncle was, of course, far too big to squeeze through the crevice at the back of the cave and was incinerated.

The mountain on which this occurred is known to the Bandjalong as *Bogar-bogarni*, the "place of farther still."

3. THE GAUNGGAN

Under the shadow of Mt. Nightcap, known to the Bandjalong as *Ijung* (Mosquito), there once lived a *balugan*, a handsome young man. Messengers came beating on their shields, announcing a great battle among the seaboard clans to the East, and inviting the *balugan*'s people to participate. As such a battle was an important social event, the *balugan* and many of his clansmen left for the coast.

The *balugan* bore himself boldly in the fight and won the heart of a local girl a *gaunggan*. Every night after the corroboree (*joar*) they met in the bush away from the camp. Although she was promised to another, she agreed to follow the *balugan* home, and so that they would not be suspected, it was decided that she should give him a day's start. Providing they did not travel together, it would be some time before her clan learned of her whereabouts.

* Arthur Groom ("One Mountain After Another," Angus & Robertson, Sydney, 1949, p. 35) records another version of this legend and states that Mt. Barney was the place where it occurred.

The *balugan* departed and the girl followed him, being careful to keep a day's journey behind him. When she reached Tooloom Creek, the boundary of his clan territory, she could hear someone chopping wood just up the hill, and thinking that it was her lover, she called out :

" *Illa balugan, illa.*" (" Where is that handsome one, where is he ")

It was the *balugan*'s mother's brother, a dirty and thoroughly unattractive greybeard, whom she had heard chopping. On hearing her voice, he looked down the hill, and seeing that she was young and shapely, he ran towards her calling out :

" *Gale ngai, gale ngai balugan wonga* " (" I myself, I myself, am your handsome one ").

The girl was horrified at the sight of this eager repulsive old man coming towards her. " *Jogombe ngaina balugan, dubaigali walu* " (" You are not my handsome one, you are an old roué ") she called.

As he walked across the creek on a fallen tree towards her, she spat on it causing it to roll over and drown the *gauung*, the *balugan*'s uncle. The log has turned into stone and can be seen to-day lying under the water.

4. NGOILOIGIR

Near the town of Old Bonaldo there once lived a man called Ngoiloigir. He was old, influential, a powerful *wiun* (Clever Man) and had many wives, some say twelve, the youngest of whom was a girl in her middle teens. Ngoiloigir had a younger brother, a youth who was about to go through the *marugan* ceremonies, the final ceremonies of initiation. He was a fine, handsome young man, much admired by all the girls in the camp, among them Ngoiloigir's youngest wife.

One day, the young man was catching black possum in a tree. He pulled them out of the hollow limb in which they hid during daylight and killed them with a blow of his *ngamara* (stone tomahawk). One black possum jumped out of the limb before the young man could seize it and ran away through the bush. He slid down the tree and raced after it.

Not far away a party of women were digging yams. As the possum ran past Ngoiloigir's youngest wife, she killed it with a blow of her *wunai* (yam stick), then picking it up by the tail, she walked in the direction whence it had come and met the young man running through the scrub.

" Is this your black possum."

" Yes."

" Here it is, come and take it."

When the young man approached, she threw her arms around him and pulled him down among the ferns. Although he knew that as a neophyte he was obliged to remain celibate, he was quite unable to resist her impassioned caresses.

The other women could be heard approaching from the nearby yam bed. The young man seized his possum and made off into the rain forest while the girl picked up her *wunai* and walked slowly back to her companions.

That evening Ngoiloigir was sitting by the cooking fire with his wives when he noticed that there were traces of *gudjing* (red-ochre) on the breasts and between the thighs of his youngest wife. He drew the only possible conclusion, and although he felt very angry, he

said nothing. After the meal, he walked casually round the camp to see who among the young men was painted with *gudjing*. His younger brother was lying by a fire completely covered with a possum skin blanket, and it did not occur to Ngoiloigir that he might be the culprit. He found nobody wearing *gudjing* and spent the night brooding over his wife's faithlessness. In the morning, he once more walked around the camp, and this time, he noticed his younger brother walking off into the bush, trailing his climbing vine behind him. He was painted with *gudjing*.



Upper Tooloom Creek: the place where the incidents related in the legend of the Gaung-gan took place.

Ngoiloigir determined to kill the young man for tampering with his woman. He told nobody about the incident but asked the boy's grandfather, whose duty it was to watch over him between and during the initiation ceremonies, to let his charge come looking for honey with him on the next day. Suspecting nothing, the grandfather agreed, and the two brothers duly went off together into the bush. A *guubai* (native bee) next was sighted in one of the

lower limbs of a tree, and Ngoiloigir suggested that the younger man should climb for it as he himself was getting somewhat old and stiff in the joints for such strenuous work. When the lad reached the limb, Ngoiloigir started to sing a song of enchantment to make him fall asleep, so that the boy slid drowsily down the trunk and lay on the grass. Ngoiloigir prodded him with his spear to satisfy himself that his sleep was deep enough, and then taking a tiny *njurum* (charmed quartz crystal) he pushed it into the boy's belly, singing to it all the time, telling it not to kill immediately but to let his brother live until night.

The boy awoke unaware that anything had happened to him. He climbed the tree again, cut out the honey, and carried it back to the camp. In the evening he started to feel ill. The *njurum*, obedient to the command of the song, moved about inside him cutting his internal organs to shreds. By the time the moon rose, he was dead.

Here there are two versions of the tale. The first, and probably the more northerly, states that the people in the camp suspected that the boy had been killed by sorcery so the usual steps were taken to discover the identity of the sorcerer next day.

The body was hung on a pole, supported by four men, two at each end, and a clever man interrogated it, running through the names of all those people who might have had a quarrel with the dead man. The list started with people from other clans, those most likely to be hostile, and when there was no response, continued with members of the dead youth's own clan. At last Ngoiloigir's name was called out and the body bucked so hard on its pole that it was as much as the bearers could do to hold it. When the grave was dug two old men inspected the earth on its bottom, and found a few scales from the skin of a *jamba* (carpet snake), Ngoiloigir's totem. There was then no doubt in anybody's mind that Ngoiloigir was the murderer. The men of the clan resolved to kill him, but as he was a capable warrior, they feared to do so openly. He was invited on a kangaroo hunt, and one man, changing himself into a kangaroo, lured him far away from the camp. As Ngoiloigir was dodging from bush to bush with eyes for nothing but his supposed quarry, a warrior crept up behind him with his *ngamara* in his hand.

On Runnimede Station there are two stones close together which are reputed to be the body and severed head of Ngoiloigir, lying at the spot where he was killed. The place is known to the Bandjalang as *Ngiridjurbain* . . . "head cut-off."

A variant ending does not mention the execution of Ngoiloigir. It tells of the establishment by him of the *wondarilbi* (Bora ground) which bears his name, on Great Table Mountain, West of Old Bonalbo. This was one of the last initiation grounds to be used by the Bandjalang. When he had reached a ripe old age he woke one morning at his camp and looked out over the country. Far away to the North, he saw two women sitting round a fire. As he felt cold, he employed his *bogara* (magic cord) to fly through the air to join them. They did not make him at all welcome, exclaiming that the fire was only big enough for two and trying to crowd him away from it. This made Ngoiloigir very angry indeed. He seized a fire stick and plunged into the Fairy Hill lagoon.

His body changed into a rock known to the Bandjalang by the name of *Njangjangin*. In very dry seasons, the lagoon dries up and the rock "comes out of the water" as the Bandjalang say. I was told that should it ever come completely out of the water, it would mean the end of the world. Once in living memory, during the early twenties, this very nearly happened.

M. J. C. CALLEY.

REVIEWS :

A Guide to the Pronunciation of Australian Place names. *Compiled by the Australian Broadcasting Commission Standing Committee on Spoken English for the A.B.C.* 147 pp., Angus and Robertson, Sydney, 1957. 30s.

Australian place names, because of the high representation of aboriginal words among them, possess an individuality distinctive of the country, just as we find in American place names with their strong Red Indian influence.

Although the shopkeeper, delivery man and postman may not appreciate identifying a street, house or suburb name such as *Jincumbilly* or *Telangatuk*, because of the difficulty of both spelling and pronouncing aboriginal place names, it is to be hoped that they will come more and more into use in our expanding cities, just as aboriginal art motifs are now being recognized as part of the Australian scene. Aboriginal words, as this Guide remarks, are "invariably pleasant sounding, with a music and rhythm that is agreeable and distinctive".

Just how high a proportion of aboriginal names is established in Australia is revealed by a glance at this A.B.C. guide to their pronunciation, and when we add a mixture of English, Scottish, Irish and European, together with a few from India, New Zealand and elsewhere, it is very quickly realized how essential is the publication of such a guide for teachers, lecturers, radio and television announcers. It is an extremely difficult matter to standardize the pronunciation of aboriginal place names adopted one hundred or more years ago. The obvious pronunciation, judged by the spelling, may not be the local one or that of the phonetician. Here the A.B.C. Standing Committee has adopted a wise course, accepting the general principle that "the recommended pronunciation of a place name is that most prevalent in its own locality, just as individuals have the right to determine the pronunciation of their own personal names . . . where rival pronunciations appear about equally well established a ruling in favour of one has been made.

The Committee has gone to infinite trouble to put this somewhat controversial matter on a satisfactory basis, and the A.B.C. has produced a most valuable guide for the purpose. It includes over five thousand names for which accented and phonetic pronunciations are given for all Australian States except the Northern Territory.

F. D. MCCARTHY.

The Demographic Yearbook, 1956. *Issued by Statistical Office of United Nations, Department of Economic and Social Affairs, 8th. edn., N.Y., 1956, 744 p. \$7.00*

One of the great problems of the future and especially of a future free of war and disease and similar "natural" population curbs is the ever increasing number of human beings occupying this planet of ours. Every hour an average of almost 5,000 persons are added to the world population of some 2 billion 700 million, according to the recently published United Nations *Demographic Yearbook*. This large increase of about 120,000 per day, or 43 million per year, is due primarily to a very marked reduction in the death rate all over the world, while the birth rate has remained almost unchanged.

The 1956 *Yearbook* contains some 750 pages of text and tables describing the demographic situation of the world today. It includes census results covering almost 200 separate areas of the world, where some 2,325 million persons live. This issue, together with the corresponding

1955 volume, constitutes a reference volume for population-census data for all countries and territories of the world, except the U.S.S.R., which is the only large sovereign area in which a census has not been taken within the past decade.

Some demographic statistics, however, have been released by the U.S.S.R. during the past year—notably an estimate of population which places the U.S.S.R. in the position of third largest country in the world. Crude birth and death rates, 1951–1955, have also been published, and these—not hitherto available—indicate a stable birth rate in the neighbourhood of 26 per 1,000 and a death rate which declined from 9·6 to 8·4 during the period.

In countries of Central and South America, where information is available for six countries in each region, the rates are 8·3 per cent and 9·8 per cent respectively. In the United States and Canada, the average infant-mortality rate is 2·7 per cent and in Australia and New Zealand, it is only a little over 2 per cent.

Besides increasing at a fast rate, Asia can also lay claim to more than one half the population of the world. This area also accounts for the largest absolute addition to the world's population—an increase of some 24 million persons per year.—Asia's distinction is also indicative of the fact that countries with high rates of population increase are experiencing an acceleration of their growth. The *Yearbook* demonstrates by means of a graph that among 60 countries with fairly good statistics, more had higher rates of increase in the period 1950–1954 than in 1945–1949; those with relatively low rates of increase in the earlier period more or less maintained that level in recent years; but more important, those with relatively high rates in the earlier period had still higher rates in 1950–1954.

The decline in the death rates may be attributed in the main to advancements in environmental sanitation and disease control though the application of medical and public-health techniques. The introduction of antibiotics in the late 30's made control of maternal mortality a possibility, as well as materially decreasing risk of death from pneumonia, tuberculosis, and other diseases susceptible to this type of treatment. With the spread during and after World War II of anti-malarial campaigns using DDT and the introduction of sanitary controls such as new water supply systems etc., deaths rates from some infectious diseases declined sharply. All of these decreases have been reflected in markedly lower current death rates which have initiated far-reaching changes in the pattern of mortality and its influence on population growth.

The revolutionary decline in mortality over the last decade has also been reflected in increased life expectancy at birth.

The country which now records one of the lowest crude death rates, the Netherlands, records also the highest average expectation of life at birth for males and females, namely 71 and 73 years respectively. Females, however, can be expected to live just as long in England and Wales, where life expectancy in 1954 was 73 years. The shortest average life expectancy in a major country is found in India, where the records show 32 years for males and females, based on the censuses of 1941 and 1951.

These and many other facts of interest to readers of this periodical may and, indeed, can only be obtained from this Demographic Yearbook. Its publication supplies us with population facts vitally necessary to any plans for social improvement on a world scale and it also demonstrates one of the great advantages of having a United Nations i.e. our ability to gather useful information on an international scale.

F. L. S. BELL.

Democracy in the Atomic Age : The Dyason Lectures, 1956. By Arnold J. Toynbee, *Oxford University Press, Melbourne, 1957. 80 pp. 12s. 6dA.*

A fair proportion of readers of this journal are either teachers of or students of social anthropology. They believe that the key to an understanding of the world we live in is provided by a study of the social forces which are at work in the community. It is for this reason that I have included among the books reviewed in this issue Professor Toynbee's Dyason Lectures for 1956. The author is perhaps the leading social historian of our age and for many of us who heard him deliver some of these lectures it is indeed a pleasure to know that they have been preserved and made available to us in the form of this book.

The very titles of some of his lectures e.g. *Contemporary History as a Scientific Problem*, *The Psychology of Encounters between Different Civilizations*, *The Jewish-Christian-Muslim view of History and its Alternatives* bristle with interest for the social anthropologist and the reader can be assured that the contents do not belie the titles. For example, listen to the Professor discussing the effects of the discovery of the non-Western "native" world on the writing of History.

"The view of History as being an assemblage of the tribal histories of the Western nations has been made untenable by what the West has now done to the rest of the World" . . . "It has unified the whole World by Western Technology and in the first stage of this unification the West had a monopoly of the new tools and weapons that it had invented and the rest of Mankind were reduced to such a degree of impotence that they could be treated by Western historians as "natives" who did not count as human beings but were just part of the flora and fauna of the non-Western countries that they happened to inhabit" (p. 76).

One could quote almost at random from any part of this most excellent collection of lively, thought provoking studies of human history and produce a passage with a pronounced anthropological slant. However, it is not possible within the confines of this short review to indicate the real worth of this little book. To be able to enter into communion with one of the great scholars of this modern age at the very reasonable price of twelve shillings and sixpence is a privilege which no reader should deny himself.

F. L. S. BELL.

Races of Africa. By C. G. Seligman, M.D., F.R.S., *Oxford U.P., London, 1957, 3rd Edn, 236 pp., 3 maps. 12s. 6d.*

There is no better introduction to the ethnology of Africa than this handy little volume. Although, since it was first published in 1930, an immense amount of new knowledge about the peoples of Africa has been collected, this latest, revised, Third Edition includes all the relevant data. The panel of experts responsible for the revision includes such names as Evans-Pritchard, Daryl Forde, Meyer Fortes, Phyllis Kaberry, S. F. Nadel, Lucy Mair, J. A. Barnes, and Isaac Schapera.

Being a straightforward attempt to classify and describe the races of the continent by reference to certain well defined physical criteria, such as skin colour, hair form, stature, head shape etc., this book does not waste the reader's time in idle speculation as to aberrant physical types but almost immediately informs him that Africa consists of five great divisions of mankind: Hamites, Semites, Negroes, Bushmen-Hottentots, Negrillos. This declaration

is, of course, qualified by reference to the six prime languages of the continent and by a more than adequate treatment of the social organization of each of the peoples discussed.

This is no dry-as-dust text book of physical anthropology. Indeed, one gets the impression that Professor Seligman is out to paint a life-like picture of aboriginal Africa and merely uses the racial pattern as a convenient method of describing the various and varying cultures of the continent. He has compressed into this little book an almost unbelievable amount of knowledge and not the least valuable part of it is an Appendix consisting of an up-to-the-minute bibliography. Armed with this manual, no student of African ethnology needs a better guide to the people of that continent.

As the Editor of a journal devoted to the study of the peoples of the Pacific one can only hope that some day another Seligman will reveal himself and produce for us an equally good and reliable and useful synthesis of the races of Oceania.

F. L. S. BELL.

Nine Dayak Nights. By W. R. Geddes. Oxford University Press, Melbourne. 1957. 144 pp., xxxi, frontis., 8 plates. Australian retail price, 42/-.

The day has passed when the anthropologist on his return from the field is able, in the words of Malinowski, "to proceed at once to a full, straightforward account of the culture of the people among whom he has been living." This is a regrettable situation forced upon him partly by the necessity of earning his living and partly by the astronomical rise in the cost of publishing a complete account of his work. Dr. Geddes has, of course, already published his formal report on *The Land Dayaks of Sarawak* for the Colonial Social Science Research Council, but this report, by no stretch of the imagination, can be accepted as a complete account of the culture. Nor indeed can the present work. It was never intended to serve such a purpose, even though the effect of its publication is to whet our appetites for the final definitive work with which we hope the author will one day regale us.

In this book he has used the novel device of presenting his people to the world per medium of Raseh, a teller of stories, and a medicine-man of high repute. Indeed, he refers to this informant as the co-author of the book, and the title refers to the nine nights occupied by Raseh in telling his long traditional tale. Each part of the myth comprises several songs, which have to be sung by the story teller. He also has to tell the story in an entertaining manner. As Dr. Geddes puts it, "in this book we are passing off as a narrative what was really a one-man opera." Anyone who has any knowledge of the absorbing interest and enjoyment with which a native audience listens to a skilled story-teller acting and singing a cycle of stories will realize the great value of such a book as this in revealing the real Land Dayak to us.

The hero of the story told by Raseh is a miraculous character named Kichapi who has more adventures than the most wonderful hero ever dreamed up by the makers of modern comic strips and yet behaves, when the story requires it, as a normal Land Dayak, in strict accordance with tradition.

Before the author tells us the story of Kichapi, he introduces us to the nature and meaning of the narrative in Land Dayak society and also sketches for us the character of these apparently very pleasant people and their general way of life. It is impossible to convey fully

in such a short review as this the delightful way in which Dr. Geddes goes about the job of portraying his people. For example, he has some very sensible things to say about love.

In attempting to describe the Dayak world of love, he admits, with commendable honesty, that it is surrounded in mystery. The eyes (of the anthropologist) are of little help in resolving such mysteries, and "talk is notoriously misleading." One cannot help but say "Hear! Hear!" to the following.

"Anthropologists of high repute often do speak with certainty of the intimate lives of their chosen people, but I feel that in this respect they must either be departing from their usual standards of first-hand observation or else they must be men or women who deserve to rate as remarkable in any society."

One is also glad to see Dr. Geddes coming to the defence of the young Dayak lover. He points out that, for the young, adventure is the salt of life and courtship probably provides the leading avenue for adventure in the life of the modern Dayak.

"If they come to the fulfilment of passion early, who can regret it, when their lives are often sadly short? No one is harmed, or, if a few are harmed, the casualties are probably less in number and less severe than in most forms of loving. All this, however, is now threatened by the missionaries. They are very good men, intending and achieving much good, but I cannot refrain from wishing that they could be a little less urgently interested in sex."

One could, with equal facility, quote the author on a number of aspects of Land Dayak life, because he writes so clearly and sensibly, without any of the involved jargon so often met with these days in ethnographic literature. This book is obviously the work of a person who has a profound knowledge and appreciation of the Land Dayak of Borneo and the reviewer unreservedly recommends it to all readers of this periodical—even though it costs two guineas.

F. L. S. BELL.

Ancient Voyagers in the Pacific. By Andrew Sharp. Penguin Books, 1957. 240 pp., 12 plates, 4 maps. 5/6.

It is a good thing that every now and then we should be jolted out of our complacency by a book such as the one under review. Until Andrew Sharp made and published this account of man's arrival in and early development of the Pacific World, most Polynesian scholars had accepted without question the picture of the Polynesian as an intrepid and skilful seaman whose only rivals in the world of geographical discovery were the European navigators of Elizabethan times.

In the very first chapter of his book, the author states his thesis, or rather restates that of Cook and his ship's surgeon, Anderson, that "accidental voyages were the sole means whereby people and knowledge were distributed to and from the more distant islands" and that "the dispersal of man in general and the Polynesians in particular to distant islands was occasioned solely by accidental voyages and not by deliberate colonization."

After restating Cook's forgotten theory, the author proceeds to build up an impregnable fortress of evidence in support of it. His chapters on "Primitive Navigation" and

"Polynesian Dispersal" are scholarly reviews of the records of accidental voyages across the larger gaps between the Polynesian groups, in the hundred years between Cook and the passing of the old sea-going canoes, whilst Chapters Four and Five are very careful, analytical accounts of every known theory as to the origins and traditions of the Polynesians. Linguistic, zoological, botanical and cultural evidence in support of his thesis is produced in Chapters Six and Seven, and Chapter Eight comprises a special study of the records of early man in New Zealand: a very useful résumé of the latest archæological findings in that island group and an equally useful revaluation of the genealogical evidence. The final chapter in the book proves that whatever deliberate voyaging took place it was always between islands of a particular group, and knowledge of navigation was almost always confined to the central islands of these natural groupings.

This is a fascinating book, with an appeal to layman and specialist alike. It is extremely well documented and has a useful bibliography and index. Its original publisher, the Polynesian Society, is to be congratulated on its sponsorship of such a useful piece of book making, and Penguin Books are likewise to be congratulated on making it available to their readers at such a low price.

F. L. S. BELL.

CORRESPONDENCE, NOTES AND NEWS:

Dr. James Tarlton Rayment: An Appreciation.

Sir,

The Balamumu tribe of the Gulf country of Northern Australia recently held a full-scale corroboree as an expression of their sorrow at the passing of their friend and protector Dr. James Tarlton Rayment.

This young man had a record of service to his country in the R.A.A.F. during World War II of which any citizen should be proud. He led raids over the Ruhr and later on over targets in the Pacific. He returned to Australia full of honours and a wish to serve his country further.

He graduated in medicine at the University of Adelaide and eventually entered the service of the Commonwealth Government as a Northern Territory medical officer. By his sympathetic and competent treatment

of the Aborigines he endeared himself to them such as few white men have been able to do.

He was a fine Australian and a son of whom my friend Mr. Tarlton Rayment, F.R.Z.S. may well be proud.

H. B. BALFOUR.

Toorak, Victoria,
September, 1957.

The Initiation of Mirianbuddy.

Sir,

Mirianbuddy is a full-blood belonging to the Goon-garree tribe which had its tribal area near Springsure. He is a fully initiated man. He is now 81 years old, and was initiated when he was 14 years old, together with about 40 other lads. In his tribe two rings of stone took the place of "Bora" grounds. He stated that the larger was

about 90 feet across and the smaller one about a quarter the size of that. All the lads were initiated together.

The ceremony took place in the smaller ring, and took about two weeks to complete. Whilst there, cuts were put on both shoulders and on the sides and back. They lived in the ring all the time. They were taught six bora corroborees whilst there.

After about three weeks they were taken to the big ring and painted in preparation for the corroborees. During the initiation the youths were taught how to use the shield (*helimon*). When Mirianbuddy had learnt that, he had to fend off real boomerangs. Then they threw nullas at each other. First they used blunt-ended ones and, when efficient in the use of these, they then used sharp-pointed ones. Then they were taught to use a sham dagger in each hand and, when able to use such properly, they then used real ones. The youths were told that the god Widooburree was watching all the time and would put them down (*bood-joonga*) into the fire (*boor-reegoo*) which was always burning if he were displeased. This referred to a continual fire on Meteor Downs, on a flat piece of ground on Peewaddy Creek, 300 to 400 yards from the creek. It results from a coal seam that at some time has caught fire, and is always showing evidence of its burning.

The smaller circle of stones had a round wooden block about two feet high standing in the centre of it, whilst the larger ring had a

pile of stones in the centre from which an eight feet high pole protruded. Just beyond the perimeter of the larger circle were two stone seats upon which the two leading elders of the tribe sat during the ceremonies.

A bush fence was built about two feet away from both rings in order to hide them and the passage which connected them from anyone outside the rings.

Men, armed with spears, stood on guard all around the outside and even inside the circles in order to prevent any of the initiates from leaving the ceremony grounds.

The following corroboree song was composed by Mirianbuddy when he and his friends were leaving their old tribal home, which they would probably never see again. It is in the nature of a lament and farewell. The country was in the Carnarvon Range district:

Yambar nyandee wondeler goobar-

Our country leaving mountain

goobar danaher Barngoo. Nardew

straight up The native name for the

wondinger Bargoora-burra

big ranges leaving the home native name for the big chasm in the Carnarvon Range, called

Wondinger.

Hell-Hole. Leaving home.

L. P. WINTERBOTHAM.

Brisbane,

August, 1954.

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(Founded 1932)

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- (a) To promote the science of Anthropology.
 - (b) To hold biennial conferences of delegates from affiliated societies to deal with matters affecting affiliated societies generally, or the science of anthropology.
 - (c) To take public and official action in the interests of anthropology, as may be deemed desirable.
 - (d) To encourage affiliated societies to co-operate in every possible way.
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All communications, MSS., and proposed advertisements to be addressed to Mr. F. L. S. Bell, M.A., Editor, City of Sydney Public Library, George Street, Sydney.

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